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# SCOTT'S SEED GUIDE

*The Way to More Profitable Farming*





S C O T T ' S  
S E E D G U I D E



*Directs you in the Way  
of Greater Profit*

O. M. SCOTT & SONS CO.  
MARYSVILLE, OHIO

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# Foreword

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*What is a carefully prepared treatise on field seeds but a guide to more profitable farming?*

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OUR customers will notice we have changed the name of our book this year. It has the same objective as all previous catalogues; namely, to present in a clear-cut way facts about seed buying that will help the purchaser lay the foundation to a more abundant harvest; furthermore to outline the most approved methods of caring for field seed crops.

We hope Scott's Seed Guide will be a help to you in these respects, and that it will lead new friends to gain and old friends to retain confidence in Scott's Seed.

You have friends who are seeking information on the very subjects that are so fully discussed in this Seed Guide. Tell them a copy can be had for the asking or better still, send us a list of four or five names and books will be mailed to them promptly.

## The Present Season

FOR the first time since the beginning of the readjustment period farming promises to show a profit. Markets are firm and a general feeling of confidence prevails. Every-one should view the present season with a spirit of optimism.

Through the period when farming has been an unprofitable business we have kept a surprisingly large percentage of our old customers. They felt nothing was to be gained by sowing inferior seed. Scott's Seed was not considered a *luxury*. Through depressions and periods of prosperity alike it pays to sow pure seed. In the past when a loss was inevitable, *pure seed* lessened its extent. Where a reasonable return was certain *pure seed* added to the profit.

Scott's Seed is kept steadfastly at a high standard of quality. Above everything else it is exceptionally free from weeds.



## Weeds

**W**EEEDS have always occupied a place of prominence in our book for they are the first thing that should be considered and avoided in sowing field seeds. Weeds are not only undesirable but to a large degree unnecessary. They oppose everything that is for the good of growing crops, taking all and giving nothing.

Aside from their unsightliness, weeds inflict an incalculable loss. Here are some of the ways in which weeds bring about losses:

They rob crops of moisture and valuable soil elements.

They crowd plants out of space and light.

They may harbor plant diseases.

They may be poisonous to men and animals.

They may prevent the drying of hay or grain in the shock.

They constitute an adulterant in harvested products.

The twining kinds often interfere with harvesting.

They add expense to the harvest and loss to the grain.

They may interfere with the system of crop rotation.

Without a thing in their favor, weeds, since man started to till the soil, have done their utmost to make farming as difficult as possible. If we could say a word in favor of weeds, it would be that they prod the careless farmer and insist that he pursue better methods. In spite of their persistence, *weeds can be suppressed*. A successful campaign may be waged against them with these four effective weapons.

Clean Cultivation.

Short Rotation.

Immediate eradication of new kinds as they appear.

Watchfulness against introductions in Seed.

The most practical, efficient and economical method of prevention of new Weeds is Extreme Care in Seed Buying.

Weeding pays, to avoid future losses, but earlier precautions pay better. It is unreasonable to assume that weeds can be forever blotted out. They seem to be a necessary evil. Yet through the sowing of impure seed they doubtless make their greatest headway.

Experience has taught us that by the exercise of unusual care seed *can* be furnished which is practically weedless. Such seed naturally goes a long way towards solving the weed problem.

It is common sense to sow pure seed. Labor and expense are saved in every operation from sowing time until harvest. It seems very unwise to attempt economy in seed buying through any other medium than a search for better quality.



As soon as I hear from you I will order my seed for I can't think of ordering from any other firm. Your seed has always proven perfectly satisfactory. Your grass seed has been true to name and perfectly free from filth.

S. K. WHITEHAIR, *Terra Alta, W. Va., Route No. 4.*

## How to know good seed

IF EVERY sower of seed used the test explained below, there would be fewer farms literally overrun with weeds. Too often the purchaser of field seeds is so completely befuddled by offers from various firms, he decides it is all near enough alike and selects the cheapest.

Our object in putting a section by the above title in Scott's Seed Book is to prove that impure seed is in most cases more expensive even before one takes into consideration the enormous losses at harvest time.

The test is so very simple it may seem to you that we exaggerate its value but *try it* and then draw your own conclusions.

### TEST

Take a level teaspoonful of the seed you want to test and spread it out on a piece of white paper. Scrape to one side all the waste matter, such as dead grains, weed seeds and chaff. Compare the two piles.

One you can profitably pay for — the other means a loss, for which you pay the good seed rate.

This operation puts before the sower a simple basis of comparison between the worth of our seeds and the worth of other field seeds.

Consider that in buying a bushel of seed you get six thousand times the amount of waste matter found in a teaspoonful. Just three weed seeds in a teaspoonful mean that one will be sowed on every square yard of ground when you sow at the usual rate.

To find the exact amount of pure seed, have a druggist weigh the pile of seed and then the pile of waste matter. Divide the small amount by the total weight, and the result will show the percentage of impurities in the sample.

You may be surprised to know how much worthless waste you have been buying along with your field seeds. *And remember, weeds mean a loss, even if you get them for nothing.*

Suppose that in testing two samples of clover by the method just explained you find that one lot contains about ten per cent more weeds and waste matter than another. The chances are that in price the two offers do not vary more than a dollar or two, yet we believe that one dollar decides more purchases than the ten per cent waste matter. Sow the bushel of inferior seed on six acres of ground and you have actually wasted what half an acre would produce. Here is the reason — one-tenth of a bushel or six pounds of worthless seed, fully enough for half an acre has been sowed. Since the loss is distributed over the entire six acres the result is less noticeable but none the less real.

Carrying the thought a bit farther; with the best seed at, say \$15.00 per bushel, you have paid \$14.00 for fifty-four pounds of good seed, (ten per cent worthless seed in a bushel), or \$15.50 for a bushel of seed that will grow. A premium of fifty cents per bushel has been paid for the poorest seed with the weeds thrown in.

To look casually at seed one may not distinguish the better lot. It is for that reason we recommend the simple test by which you may know just what you are buying.

### HARD GRAINS

All clover seed contains a certain percentage of hard seeds that are slow in absorbing water. This percentage is largely dependent on weather conditions at maturing time. In making tests, clover seed is left in the germinator five or six days. Of course, some of the hard grains will germinate if not removed for several days longer, and many of them, undoubtedly most of them, will grow when planted in the ground and subjected to moisture, heat and the chemical action of the soil.

While it hardly seems possible, it is a fact that seeds having the finest appearance (and containing the largest amount of plant food to give the young plants a good start) are those that ordinarily contain the greatest number of hard grains.

In buying seed it should be borne in mind that *freedom from weed seeds is of greater importance than germination*, providing, of course, that this is not unusually low.

## GERMINATION

To make a germination test, remix the seed and count out, say, 200 seeds. Be sure to take them just as they come, and do not choose the best grains, for the object is to find out what percentage of the total seed will grow. The seed may be planted in a box of dirt or sand kept moist, or may be put between two blotters or strips of cotton flannel, placed on a plate covered with another plate upside down. This prevents evaporation. Keep the blotters moist, but not in water, and as near the temperature of 70 degrees as possible. Examine the seeds each day and see how they are germinating. Weak or slow germination indicates that the seed will make weak plants. Sprouted seeds may be removed each day if desired. Some seeds require a longer time to germinate than others.

The proper germination periods are as follows:

Clover seed between three and six days.

Timothy and Red Top between five and eight days.

Orchard Grass between six and fourteen days.

Kentucky Bluegrass, fourteen to twenty days.

If you want to go into the matter of seed testing a little more thoroughly, send for Farmers' Bulletin No. 428, from which much valuable information can be obtained.

## COOPERATIVE BUYING

When the responsibility of seed buying is taken out of the hands of the man who is going to sow it, the temptation at once becomes stronger to seek lower prices and give less thought to quality. The purchasing agent feels he must show a saving to the members. It is easier for him to show this by low prices than by high quality.

By instructing him to get good seed even at a higher price, the members can free their agent from this temptation with the assurance of a greater eventual profit to themselves.

The encouraging thing is that after we have once sold them Scott's Seeds and the members have seen a growing demonstration of their quality, it is an easy matter to sell the same organization again.

## Scott's Seeds

*Carefully Selected—Thoroughly Cleaned*

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*Impure seed is the easiest to buy because it is more plentiful; it is easiest to sell because the price is low but the buyer ultimately loses through small crops and weedy fields; the seller loses because he has disappointed the buyer and lost a customer.*

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SCOTT'S Seed doesn't signify special strains for which unreasonable claims are made but it represents a standard of quality. Probably every concern that begins to market a product has an ambition to put into it something that competitors have overlooked. It is that something which makes one automobile more serviceable than another and one tractor more sturdy than the rest. That something which makes Scott's Seed superior is *unusual freedom from weeds and waste matter*. This is the definite object we have had in view and is the reason for the scrupulous care we have exercised in selecting and cleaning. Such seed cannot help but produce larger yields than that purchased at random because it is convenient and selling at a low price.

We sincerely believe that the sowing of Scott's Seed as a yearly program will add to the profitableness of farming and give the sower every assurance that he has not wasted valuable ground.

We quote the following from one of our Maryland customers: "The Clover seed I bought from you last spring has turned out very well. I have the best field of Clover we have ever had on the farm. In fact all the seeds I have bought from you have always been most satisfactory."

## Alfalfa

THE third most important forage crop in the United States. Western states fully appreciate its value and in the East alfalfa is becoming increasingly popular. The pages which follow describe ordinary Alfalfa, Canadian Variegated and Grimm. Scott's Grimm is guaranteed not to winter-kill. Cossack Alfalfa is not equal to the Grimm. Hardigan is new and it is yet to be proven that it will withstand winter-killing as well as Grimm. We can supply both. In seed buying it is important to purchase from reliable sources. Imported seed is less desirable than native grown. You will find much valuable information in the pages following. Notice that Alfalfa has a dangerous enemy which can be overcome.

## Alfalfa

**I**N buying alfalfa seed, the possibility of getting imported seed should be considered.

Seed grown in Asia and Southern Europe has been brought into the country for years, and thousands of bushels now come from Argentine. It is beautiful seed, but like nearly all other imported alfalfa grows in a much milder climate than the middle and northern states and is accordingly undesirable, both as to hardiness and growth.

The Department of Agriculture can identify imported alfalfa. The commercial value of foreign seed is two or three dollars less per bushel than American grown. Alfalfa seed offered at less than the average price is quite likely to be the imported article.

### WEEDS — ALFALFA'S WORST ENEMY

It is a fact accepted by all Experiment Stations that weeds are the thing to consider when sowing alfalfa. The seed bed should be clean, and the seed itself free from weed seeds. If weeds are abundant, the young alfalfa plants will be smothered out. To get a good stand of alfalfa, two things are obviously necessary: land free from weed seeds, and alfalfa seed free from weed seeds. The first year weeds are alfalfa's worst enemy. Aggressive weeds can ruin a good stand.

In sowing alfalfa, it is a question not so much of pounds per acre as of quality of seed and proper soil conditions. Seven pounds of seed that is pure and of strong vitality is better than fifteen pounds that contain weed seed.

The expense of preparing land is the same no matter what kind of seed is sown. The actual difference in the cost per acre between the best and the poorest seed is very little, but the cost of care and of harvesting is greatly increased if weedy seed is sown. It is most unwise to sow weeds with one hand and fight them with the other. Trouble, annoyance and loss are saved by testing seeds. You cannot afford to omit investigating the seed you expect to sow.



In the first part of this book we have demonstrated many of the losses due to weeds and have shown that inferior seeds thoughtlessly sown may mean the spreading of weeds all over your own and neighboring farms. One of the leading authorities has the following to say on this subject: "Had a few Dakota farmers been alive to the danger when the first Russian thistles appeared in their flax fields, the spread of that most pernicious plant might have been prevented, to the great advantage of large areas of the country."

That the danger of impurities is a real one is proved by analyses of more than 500 samples of alfalfa seed made by the New York Experiment Station. Of 548 samples, almost one-fourth contained seeds of dodder, while still larger percentages of the samples showed seeds of buckhorn, yellow foxtail and green foxtail. Considerable percentages contained wild carrot and Russian thistle, and occasional samples were contaminated with seed of curled dock, crab grass, Canada thistle, chicory, charlock, black mustard and quack grass.

### SOURCE OF PUREST SEED

Kansas harvests the cleanest alfalfa seed but for several years has produced very little. This season the crop is fairly large. Northwestern Nebraska and South Dakota produce some excellent seed, free from weeds, if care is used in selecting it. The Dakota seed is not plentiful this year on account of the drought. Further along we mention Canada grown Variegated Alfalfa as well as Grimm.

In sections where winter-killing occurs, and selection for hardiness seems necessary, we advise that by all means Grimm Alfalfa should be used rather than seed at a fancy price of doubtful origin and uncertain worth.

### FEED VALUE

Protein is the element which to a large extent determines the amount of beef or milk a given feed will produce. The market

value of any feed is based on the amount of protein it contains.

Nearly all stock feeds fall short of the proportion necessary to proper balance, but alfalfa furnishes this needed element in abundance.

You should not buy protein if you can produce it on your own farm.

Too often on farms where alfalfa is not raised, an unbalanced ration is fed owing to the high cost of concentrated feeds. A large part of the otherwise necessary cash outlay for high protein feeds can be avoided by the use of alfalfa, the most economical ration balancer at the command of dairyman or stockman.

Alfalfa and corn make not only the cheapest but the best balanced ration. To feed corn and other grains alone wastes starch, and animals do not thrive as well as when along with the corn a rich, palatable feed, such as alfalfa, is fed.

Circular No. 25, Michigan Experiment Station, says: "A ton of alfalfa hay contains 46.5 pounds of nitrogen, 12.2 pounds of phosphoric acid and 35.8 pounds of potash, and that its total present value, if purchased as commercial fertilizer, would be about \$10.80."

Alfalfa hay can be raised for much less than \$10.80 per ton, in fact it can be sometimes purchased for this price. When this is the case one is actually getting the hay for almost nothing, because in returning the manure to the fields, only 25.3% of nitrogen, 22.5% of the phosphorus and 12.2% of the potassium is lost.

The sowing of Scott's Seeds will keep the manure pile free from weeds.

### PREPARATION OF SEED BED

It is not possible to plow timothy or blue grass sod for immediate planting of alfalfa, without having the growth of alfalfa greatly interfered with by the grass. A cultivated crop, such as corn should be raised the year before; then it is unnecessary to plow the ground unless it is foul or of a very heavy character.

If plowing is thought best it should be done in the fall, especially if early spring seeding is contemplated, for in seeding

alfalfa the loose, open seed bed, such as is prepared in plowing a short time before seeding, should be avoided. It takes nearly six weeks for plowed ground to settle for alfalfa seeding. Otherwise, capillarity, or the power of the soil to draw water to the surface is interfered with.

The surface should be cultivated until the soil is as fine as a well-prepared garden. This top covering prevents evaporation, and thus keeps the soil warm, besides leaving the seed in complete contact with the soil, which makes plant food easily available when the seed sprouts.

The young plants are likely to die in poorly prepared spots, these spots eventually becoming weed distributing stations. Hollows become filled with water and ice, which may kill the alfalfa.

### COMPETITION OF WEEDS. POOR SEED

The ground always contains weed seeds, and for this reason, thorough cultivation at intervals to kill them as they sprout is advisable. After going to this trouble, it is surely unwise to sow seed that contains weed seeds which will sprout at the same time as the alfalfa, and probably overcome it.

### LACK OF FERTILITY

While alfalfa is a deep feeder, drawing its food from greater depths than most plants, it is more tender than other clovers when young, and needs encouragement. Well rotted manure is the best fertilizer, but usually not available. Fresh manure, on account of weed seeds, should be applied to the preceding crop, or before plowing, the weeds being destroyed by frequent cultivation up to seeding time.

### FERTILIZERS

If it is impossible to use either of the above, commercial fertilizers should be used, especially on poor soils. We like bone meal best. Any fertilizer used should contain a large amount of phosphorus. Alfalfa gathers its own nitrogen, if inoculated.

## ACID LAND. NEED OF LIME

The percentage of lime in the ash of alfalfa is almost 35, nearly twice the percentage shown by red clover, and more than seven times that in timothy. Lime is beneficial to most plants, and to the legumes it is absolutely necessary. More lime is needed for alfalfa than for red clover.

If sorrel, dock, red top or blackberry bushes thrive in your fields and clover does not, undoubtedly lime is needed. If muriatic acid poured on the soil fails to make bubbles, lime should be used. If limestone pebbles or shells are present lime need not be added. The absence of these, usually, but not always, indicates the absence of lime. Valleys are not so apt to require lime as hills.

When in doubt about lime use it, or consult your station.

A large crop of alfalfa cannot be expected unless the bacteria which find their home in the nodules on the roots are present. These bacteria gather free nitrogen from the air, and pass it on to the alfalfa, but they have no use for an acid soil.

Of the three forms of lime, the one that is the most economical in your section should be used.

One hundred pounds of raw lime rock when burned is reduced to 56 lbs. of burnt lime or quick-lime. When this is water-slaked it takes up 18 lbs. of water, making 74 lbs. of hydrated lime. Therefore, 56 lbs. of burnt lime, or 74 lbs. of hydrated lime is equivalent to 100 lbs. of ground limestone.

Probably not less than two tons of ground limestone per acre should be applied, and more will not hurt. Apply as long before sowing as possible, even a year in advance.

## DRAINAGE

All plants require air in contact with the roots. If there is too much water in the soil, the air is reduced and root development retarded. A lesser top growth follows. Drainage takes off surplus water and admits air, causing circulation. Almost any wet soil, if properly drained, will raise alfalfa. The tile should be put in as deep as may be practicable.

### INOCULATION

A great many scientists have been giving years of study to the subject of inoculation. As far as we know, every one of them agrees that it is necessary to introduce the proper bacteria into the soil if the best stand of alfalfa is expected. The cost of time and material is small, so it scarcely pays to run the risk of partial failure in order to save the trouble. Nitrogen is the most expensive fertilizing element. If the bacteria are supplied, alfalfa fills the soil with it at no cost.

### WINTER-KILLING

Alfalfa seldom winter-kills on land well drained. Any clover is apt to winter-kill if there is little humus in the soil. Ground containing plenty of humus is porous and ventilated; there are air spaces which favor the rapid carrying-off of excess moisture. Stiff clay soils that are devoid of humus become filled with water, which in freezing weather forms ice and causes the soil to expand and heave, pulling out and breaking off the roots. Fields that carry red clover through the winter will do the same for alfalfa. If each year it is becoming harder to keep a stand of clover, put humus in the soil. Soils that contain humus are warmer than soils that do not.

### SEEDING

Alfalfa may be seeded at any time from early spring until late summer.

Where winters are particularly severe, spring seeding is favored. In milder climates, due to the early growth of weeds, fall seeding is desirable.

Do not clip alfalfa in order to kill weeds until it is in blossom, or at least until the weeds are about ready to seed. This will kill the weeds in young fields. Early mowing may kill the young plants. The idea is to cut as many of the weeds and as little of the alfalfa as possible.

The alfalfa should not be allowed to form seed, for this requires plant food which should go to the roots.

Successful stands are often obtained by drilling the seed in the wheat fields in the early spring.

Sowing in the corn is a good gamble, if care is used to have the field free from weeds and in good order. A one-horse drill may be used, or the seed broadcasted, followed by a small harrow. If one cultivation is omitted, the alfalfa has a better chance on account of the earlier sowing.

Some sow in June, but we have found that foxtail and other weeds are still likely at that time to be a serious menace, and because we don't like weeds, we prefer to sow from July 20th to August 10th. This allows plenty of time for getting the ground in fine shape and for killing the weeds by cultivation. At this time the young plants receive full benefit of moisture, sunlight and plant food, as they sprout. Late seeding has many advantages on most soils. For one thing, the land can be used for another crop before being prepared for alfalfa. The second year's production of hay will almost invariably be greater from late summer sowing in spite of the longer time for growing allowed by seeding in the previous spring.

Fertile ground does not require as much seed as poor ground. Poor seed will not go as far as good seed. Broadcasting requires more seed than drilling. Thus the amount required per acre varies, but as a general rule twelve pounds per acre will be found about the right amount. After sowing harrow lightly to cover seed and smooth out any furrows left by the drill, as a heavy rain may bury the young plants. Alfalfa seed should never be covered to a greater depth than one inch. The top soil should be left loose.

### IMPROVING A POOR STAND

It is not always possible to thicken a stand where the plants are thin throughout the field, but if they are not over a year old the following plan may be used with some success: Disk or otherwise cultivate the field, and harrow after sowing. The proper time to do this is early in the spring, before the old plants start. A thin stand from spring sowing may be improved by re-sowing in the fall if the rainfall is abundant. Ordinarily, alfalfa, more than one year old, makes a growth that will shade and smother out young

plants. In improving a stand of this kind, some recommend frequent clippings until the new growth gets started.

### HARVESTING

Alfalfa leaves contain twice as much protein as the stems, about twenty-eight per cent in the bud stage. This should be kept in mind when the hay is being made, and every means used to save the leaves. Where the leaves shatter in feeding they should be saved. When scalded and mixed with other feed for hogs they make an economical source of protein.

The Kansas Experiment Station found that the protein content of alfalfa when one-tenth in bloom is 18.5%, when in full bloom, 14.4%. For this reason the mature hay is better for horses. But for other stock the green hay, with the larger protein content, is the more profitable. Providing new shoots have started, the best time to cut is just as the field begins to show blooms. There should be an abundance of shoots about 1½ inches long. If too long, they will be clipped by the mower, and growing time will be lost, for alfalfa grows from the end of the shoot, like a fern. Diminished yield results if the crop is cut too soon.

The basal sprouts are the best guide to cutting, but in dry seasons the new shoots are sometimes slow in appearing. In this case the blooms must be taken as the sole guide, for the feeding value diminishes rapidly as leaves are shed to protect the plant from the drought.

In wet seasons the second growth may be six or eight inches high before the blossoms appear. It is better to observe both the sprouts and blossoms before mowing. Crowding alfalfa with too frequent cuttings will weaken the roots for the reason that they will not receive enough food from the stems and leaves; and weeds and grass are not smothered out as effectually, for they will have more air and sunshine. Nothing is gained in the end by cutting a fourth crop.

If the hay is allowed to dry too rapidly this loss of leaves happens during the curing process. A little experience, however, soon demonstrates that alfalfa is easily cured.

Alfalfa may be put in the stack or mow damper than is generally supposed, that is while the stems are still quite tough or flexible.

Alfalfa should be let lie until the leaves are wilted, then raked into windrows and then into cocks, until cured. A heavy crop may be tedded. Alfalfa may be stacked when so dry that moisture cannot be wrung out by twisting the hay.

Usually the greatest growth is from the first crop, which is nearly always harvested during a rainy time, and requires more care in handling. Later crops, harvested in mid-summer, may be cut in the morning, raked into windrows in the afternoon, and put into the mow the next day.

Any kind of hay should be exposed to the hot sun as little as possible while curing. Too long exposure bleaches the leaves of alfalfa, and causes them to become brittle and fall off. Moreover, if the leaves have been burnt in the sun, they will not absorb the water in the stems, and the hay will cure slowly and unevenly. Curing through the action of air and wind is best, therefore, alfalfa should be cured in cocks, instead of in the swath.

The greatest quantity of hay is harvested during the third or fourth season. After this weeds, grass, etc., weaken the stand, and the yield decreases.

### PASTURING

As a general rule it is best not to pasture alfalfa under any condition, although some authorities say that it is safe to pasture when the crop is ready for making hay by turning enough stock on the field to harvest it quickly.

### LEAVES TURNING YELLOW

The first growth of alfalfa sometimes shows yellow. This may be due to lack of either humus, of drainage, or of lime. Sometimes it is because the young plant is feeding in the surface soil and the condition disappears when the tap root has pushed farther down.



## Grimm Alfalfa

*We Guarantee Our GRIMM NOT to Winter-Kill*

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*It is very hard these days to find an article of any kind that isn't guaranteed to-be-something or to-do-something. These guarantees are often so worded as to really mean nothing. Please notice that in the case of Scott's Grimm Alfalfa our guarantee means something definite. It means that you have a growing proof of genuineness.*

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WE guarantee it for the purpose of dissipating whatever doubt there may be in the minds of prospective customers concerning seed purchased in a section distant from the place where first grown. This guarantee is designed to give sowers the necessary confidence not only in our GRIMM, but in the GRIMM strain as a safe and profitable crop.

To guarantee the seed to grow after it is in the ground would be impossible, as too many things can happen. But if weather conditions permit the growth to come along all right, we will replace the seed, willingly and cheerfully, if the plants do not go through the winter. GRIMM ALFALFA should, of course, be planted in ground that will carry red clover through the winter; ground where the drainage and other conditions are not unfavorable. North of the Ohio River, alfalfa should be planted not later than August 10th because of the danger from dry weather, delaying germination so long that the plant will not get a good start before winter. We cannot guarantee GRIMM that has not reached a growth of 6 or 8 inches before it becomes dormant.

GRIMM will outstand ordinary alfalfa in wet ground, but it cannot be successfully grown on ground poorly drained. All investigators agree that it will do better on hard-pan soil than ordinary alfalfa, and it is the safest seed to sow in any part of the country.

As the department of Agriculture and the Minnesota Experiment Station indicate, it is the inherent characteristics of the strain rather than the locality which first reared it that make GRIMM ALFALFA HARDY.

The proof of genuineness is hardiness. There is no other positive proof. We GUARANTEE the hardiness of the GRIMM ALFALFA we furnish.

To guarantee GRIMM to be true to name, and to guarantee GRIMM not to winter-kill, are not at all analogous propositions. You could never prove that it was not GRIMM, but you certainly could prove it winter-killed if that were the case.

Different winter conditions cause alfalfa to kill. A rainy fall prevents the plants from becoming dormant early, making them much more likely to winter-kill than following a dry autumn.

Alternate freezing and thawing in clay or in humus-poor soil will break off the roots. Sheet ice often kills alfalfa.

GRIMM has the characters that enable it to withstand these conditions better than any other variety, and at the same time, it is thought to be more drought-resistant than ordinary alfalfa. For this reason many believe that on an average GRIMM will produce probably more hay than other strains.

Wendelin Grimm, a native of Germany, brought with him to Carver County, Minnesota, a small quantity of alfalfa seed. The seed produced exceptionally hardy plants, and when it was eventually recognized as a superior strain it became known as GRIMM ALFALFA.

As conditions in Minnesota are not favorable for seed production, only occasional limited crops were secured. But the demand grew, and as its value became known, sections more favorable to seed development were sought. Minnesota soil having pioneered the thing, that State acquired national fame as the producer of GRIMM ALFALFA, although, as a matter of fact, there has been but very little of it ever raised there at all.

Mr. W. A. Wheeler, now with the Department of Agriculture, writing of the hardiness of GRIMM, says:

"I saw a field of it in Saskatchewan, Canada, in 1906, which had withstood the winter when other stocks under trial were almost entirely killed out. In North Dakota, Minnesota, and

South Dakota it has always shown its hardiness, never to my knowledge having been excelled in this respect where a good comparison was made. It is a fact that at the Minnesota Experiment Station, the Grimm Alfalfa has to some extent been killed out under most severe conditions. It is well known, however, that there are conditions in the vicinity of the Twin Cities and many other portions of eastern Minnesota which are unfavorable for alfalfa, and these factors are to a large extent responsible for some of the failures in this region. In fact, the Grimm Alfalfa, in its adopted home near Excelsior, Minn., rarely produces seed enough to pay for cutting the crop for this purpose. \* \* \* At the Minnesota Station the Grimm Alfalfa seems to be very much the more promising, and this is highly recommended. The selection and breeding of alfalfa at this station has been handicapped by the fact that very little, if any, seed is ordinarily produced by the selected plants because of the unfavorable conditions of seed production.”

Mr. R. A. Oakley, of the Department of Agriculture, in Bulletin No. 757, says:

“When Grimm Alfalfa first began to demand attention, all of the seed was produced in Minnesota, but as conditions there are not favorable for seed production, stock was sent to Montana and other western states in order that the available supply might be more rapidly increased. Carefully conducted tests of Grimm seed produced in Montana, Idaho, and the Dakotas indicate quite definitely that it has not decreased any in hardiness as a result of having been grown for one seed generation under these changed conditions.”

These statements place all GRIMM distributors on the same basis. The producing sections are well known, the market is open, and all handlers are equally well located to furnish GRIMM seed that is true to name. Our extraordinary bid for your preference is in the extreme care we take to furnish seed that is clean and free from weeds.

Just why GRIMM ALFALFA is so much hardier than other alfalfa has never been satisfactorily settled, but the principal reason generally accepted is its low set crown which affords protection to the tenderest part of the plant. It is also aided by

the branching tendency of the roots. It is, however, difficult to distinguish GRIMM from ordinary alfalfa by examining the root system. It does not show so large a percentage of branching roots as one would be led to believe from illustrations of selected plants and from some advertisements. Generally, about 40% to 70% of GRIMM roots are more or less branched, but a considerable per cent of the roots of common alfalfa also show this tendency. There is not much difference in the blossoms, except that GRIMM when in full bloom shows a higher percentage of mixed or variegated flowers. The seeds of both are exactly alike. This gives appropriateness to another extract from bulletin No. 757:

“The supply of seed on the market is still, however, rather limited, and commands a high price. As a result, unscrupulous dealers have offered for sale large quantities of common alfalfa under the name of Grimm. Because of this practice, prospective purchasers should take every means possible to learn whether seed is true to name before buying.”

GRIMM ALFALFA has a definite market value like any other standard seed. GRIMM at a very low price could not be true to name, and so would be an unwise buy.

In seed producing sections GRIMM Fields are grown for seed almost exclusively, owing to the extra price which the seed brings. The weeds in an alfalfa field tend to increase more rapidly when the stand is allowed to remain for seed each year than when the field is mown regularly for hay. For this reason one should be especially careful in purchasing GRIMM ALFALFA.

### CANADIAN VARIEGATED

This variety has been grown in Canada for a number of years. The seed is plump and free from weeds, and a beautiful color. Authorities say it will withstand winter-killing about as well as Grimm and the price is considerably less. We recommend this seed for its purity and hardiness.

## Sweet Clover

**T**RUTHFULLY, Sweet Clover has been called the Universal Plant. It grows almost anywhere and under practically any conditions. Result — a large crop this year and a price one-half that of red clover. Read in the next nine pages what the grower should know about this crop. Is there more than one variety? Can Sweet Clover be raised for a seed crop? Will cattle eat it? Must it be inoculated? What about Hubam? These and many other questions are answered in the succeeding pages.

# Biennial Sweet Clover

## *The Universal Plant*

**S**WEET Clover is a universal plant, because it can be grown in nearly all parts of the world. It is raised in every State in the United States. In many clover-producing sections that have suffered from Red Clover diseases, it is replacing this legume. Sweet Clover seems almost entirely free from diseases.

There are a large number of varieties of Sweet Clover, but only three are of value in this country, namely, White Biennial (*Melilotus alba*), Yellow Biennial (*Melilotus officinalis*), and Annual White Sweet.

While the white, on account of its larger growth, is the most popular variety, the yellow biennial is preferred by many for both pasture and hay on account of its finer and more branching stems. It seems to be a larger producer of seed. It has the advantage of maturing about two weeks earlier than the white.

When Sweet Clover is mentioned without any special variety being named, it is always understood that the biennial white is meant.

Its extensive root system enables it to gather the little plant food remaining in worn-out soils. When inoculated, the abundant root nodules store nitrogen and the decaying roots add humus. The deep penetration of the longer roots improves the drainage and after a crop of Sweet Clover the soil is always more friable and mellow, so that following it a good crop, even of corn, may be raised, though no profitable crop could be grown before.

Observe the uncultivated spots where Sweet Clover appears to grow the best. Organic matter, or humus, seemingly is not necessary, but these spots always contain lime and the ground is always hard. This indicates the method that should be employed in order to be sure of a good stand of this valuable plant. A firm seed bed should be prepared and lime must be applied if the soil is acid.

Inoculation is almost necessary.

Freezing weather does not injure bacteria. The sun's rays do

not prevent inoculation when seed is sown on top of the ground as enough bacteria will stick to the under side.

Scott's Bacteria is guaranteed for Winter as well as Summer use.

Sweet Clover prevents erosion on hillsides. It practically never freezes out during winter or spring. It is a weed-killing crop because of its rank growth. It builds up worn-out pastures and meadows. It will carry several times as much stock as ordinary pasture land. It contains more protein than Red Clover. Unlike alfalfa, it is not injured by pasturing. Plowing it up is easy, for although the roots are quite large, they are soft and decay rapidly.

Bee keepers for years have recognized the value of Sweet Clover. The honey from Sweet Clover is of good color and flavor.

As a universal plant it leads even alfalfa, for it will grow not only in any climate, but on soils where alfalfa fails. Where it is at first impossible to get a stand of alfalfa, Sweet Clover will furnish a profitable yield and at the same time prepare the ground so that there will be no difficulty in establishing alfalfa permanently.

For four or five weeks after germination, Sweet Clover makes but a slow growth above the ground, but the root system is developing, getting ready to meet unfavorable conditions, and as is the habit with biennials storing up food not only for this but also for the next season's growth.

The tap roots during the first season will sometimes reach a depth of thirty inches. The top growth is rapid after the plant has once become established.

### FOR GREEN MANURE

Nitrogen from any source except manure, and the growing of leguminous crops, is too expensive to return a profit. According to recent experiments conducted by the Illinois Experiment Station, Sweet Clover offers the most promising indications that the problem of supplying a cheap source of this element can be solved.

Sweet Clover possesses the following characteristics, which

make it far superior to other crops as a green manure for nitrogen production:

1. It is adapted to almost any climate.
2. Hardiness to cold or drought.
3. Resistance to disease and weeds.
4. Large production per acre at the proper time for plowing under.
5. Rapid decomposition.
6. Deep rooting habit makes impervious subsoils porous.
7. Obtains plant food from insoluble minerals more readily than other crops.

A crop that grows rapidly in early spring, and decomposes rapidly, makes an ideal green manure. It also keeps in the soil large amounts of plant food by its rapid growth. Besides, Sweet Clover, when properly inoculated, gathers nitrogen from the air. It stores in its roots great quantities of nitrogen, which are available as soon as growth starts the second year. When turned under, the leaves decay rapidly; the roots and stems more slowly. The three different parts represent three sources of nitrogen to be drawn on over a considerable length of time.

Few soils are able to meet large crop demands for nitrogen. Since Sweet Clover will supply nitrogen at an insignificant cost, it could well be utilized by most farmers as a green manure crop.

One soil may contain twice as much nitrogen as another and still produce less crops, because the nitrogen is resistant to decay. A small amount of active nitrogen in a poor soil may produce more than a larger amount of inactive nitrogen in a rich soil. It is most important to keep as much nitrogen as possible in the active state of decomposition when it is needed by crops. If this is done by inoculated legumes, then the amount of nitrogen that should normally, or always, be in the soil, is at the same time preserved.

Sweet Clover's ability to do this should not be overlooked. To conserve nitrogen may be as important as its addition.

Investigations by Messrs. Whiting and Richmond showed that one ton of water-free, or about six tons of green Sweet Clover (roots and all), furnish as much nitrogen as twenty tons of farm manure.



The tops on a water-free basis averaged 4.38 per cent nitrogen, which means 87.6 pounds of nitrogen per ton of dry weight. The roots weigh as much as the tops and the nitrogen content is about the same, which indicates more than 170 pounds of nitrogen.

Sweet Clover, when used as green manure, will add to, conserve, and make available the nitrogen of the soil.

### PASTURE

It is claimed by some that an acre of Sweet Clover will furnish pasture for five or six times as many animals as will the ordinary mixed grasses. While some stock will refuse Sweet Clover at first, they all soon get the habit, especially if turned into the field when the plant is small and tender.

During the first year grazing can start when the plant is about six inches high and can be continued until late in the summer.

When seeded on wheat fields during the winter or early spring an abundance of fall pasture is available when most fields are affording very little feed.

The second year Sweet Clover makes a quick, early growth and may be pastured sooner than any other plant. If a seed or hay crop is wanted it can be pastured until the middle of June, for grazing really benefits the stand by causing the plants to stool and make a larger number of branches.

When a field is used for pasture alone enough animals should be grazed to keep it eaten reasonably close. Then there will be a constant supply of small, tender shoots. Should the plants become coarse the pasture can be clipped to stimulate the growth of fresh shoots; setting the mower knife eight inches high.

Do not be afraid of pasturing too closely. Usually the more stock you turn on Sweet Clover the better.

If stock are removed about two months before heavy frost the pasture will reseed itself.

Besides furnishing the earliest pasture, it thrives during the hot, dry summer months and makes some growth after the first frosts.

One acre will furnish pasture for at least twenty shoats.

There is less danger of bloat than from alfalfa pasture.

As stock crave a dry feed when pasturing on Sweet Clover, it is often desirable to have a stack of straw or hay in the meadow.

### CUTTING FIRST YEAR'S GROWTH

The first year the crop should be cut for hay at about the time growth ceases. There are two important reasons for cutting at this time. In the first place, this season's growth does not become woody and it is safe to wait until the maximum growth is made. Second and more important, there is no danger of injuring the plants by cutting too close, because the first growth of the second year starts from the crown. Shortly before the end of the growing season the crown buds are noticeable, after which it is safe to cut. This point is not generally well understood.

The fact that buds for new growth are all ready to start at the beginning of spring, along with its vigorous root system, makes it produce pasture so much earlier than other plants.

The first year, do not clip Sweet Clover during the summer unless absolutely necessary.

If the plant is clipped to kill ragweed or other weeds, the cutter bar should be set quite high, for after being clipped there is no further growth from the main shoot, but dependence must be had upon the lateral branches for pasturage or for hay. As many of these should be left below the point of cutting as possible.

### CUTTING SECOND YEAR'S GROWTH

"While the first crop in the second year comes from the crown buds, the new branches which produce the second crop of the second year come from the buds formed in the axils of the leaves on the lower portions of the stalks which constitute the first crop. These branches usually commence growth when the plants are about twenty-four inches high. In fields where the stand is heavy and where the lower portions of the plant are densely shaded, these shoots are soon killed from lack of necessary light. The branches which are first to appear and which are first to be killed are those closest to the ground. It is therefore very important when cutting the crop to cut the plants high enough

from the ground to leave on the stubble a sufficient number of buds and young branches to produce a second crop.

“In fact, the stand should be cut several inches above the young shoots or buds, as the stubble may die back from one to three inches if the plants are cut during damp or rainy weather.”

We quote from U. S. D. A. Farmers' Bulletin No. 820. This explains very clearly why care should be used in cutting Sweet Clover. We advise reading of this bulletin as well as Mr. Coe's other Sweet Clover Bulletins, No. 797 and No. 836.

Hay cut the first year is fine-stemmed and palatable.

Hay must be made the second year before the bloom buds appear, as the plants become woody about this time.

The hay is cured in the same manner as Red Clover or Alfalfa, but being more succulent a longer time is required.

As in handling other clovers, the idea is to get rid of the water gradually instead of allowing the leaves and stems to be burnt by the sun. This saves the leaves, the most valuable part of the plant. The hay should lie in the swath until well withered and then be raked into windrows. The next day, if sufficiently dry, it must be put in cocks and cured. The cocks should be of such size that they can be loaded in one forkful in order that as few leaves as possible be lost.

### SEEDING

From a labor-saving standpoint, at least, probably the best time to sow Sweet Clover is during the winter any time from January to April on corn ground or other bare ground. Freezing and thawing will bury the seed and cause the hard grains to germinate, there being quite a large percentage of these in any Sweet Clover that has not been scarified.

Even when the laboratory test shows the germination of Sweet Clover to be quite high it will not respond to moisture as quickly as Red Clover, more rain being needed even when the seed has been scarified. For this reason growers are sometimes surprised to find that they have a poor stand of Sweet Clover, while in a neighboring field sowed with Red Clover at the same time, the growth has been entirely satisfactory.

We quote a letter received from the Department of Agricul-

ture: "I have yours of the 7th and in regard to the failure of Sweet Clover to germinate or to live after germination, when the seed bed is not firm this appears to be entirely a matter of moisture supply. A loose seed bed is dry especially when a period of protracted dry weather follows sowing. A firm seed bed is in contact with the moist subsoil. Just why Sweet Clover should be so much more sensitive than other clovers we cannot say. There are peculiarities of all varieties that we simply know exist, but we are not in a position to explain them."

A lack of moisture just at the time of germination or immediately after the young sprout is appearing seems to affect Sweet Clover more seriously than other clover. However, there is a very small percentage of failures in the seeding of Sweet Clover.

Remember that Sweet Clover seed should be only lightly covered.

A firm seed bed is important, as it is in contact with the moist subsoil, so where necessary to plow, if possible the ground should be plowed in the fall and harrowed down, the seed being broadcasted during the winter months. However, seeding may be done in April or May on a well prepared, firm seed bed with just enough loose soil to cover the seed. Like any other clover, Sweet Clover may be seeded on wheat or rye in the spring, or with oats or barley.

August seeding is not desirable in most sections, for then the plant lasts but one growing season and does not reach its largest development. Many sow during June or July; some as late as the last of August. The Virginia Experiment Station recommends sowing in August for pasture and hay crops the following year.

While Sweet Clover, once it is established, is very drought-resistant, the plants when young must have an abundance of moisture on account of the deep-growing roots.

Too heavy seeding means that young, small branches and leaves on the lower part of the stem will be killed by the crowding. This necessitates higher cutting and makes less and coarser hay.

Inasmuch as Sweet Clover has a hard seed coat, scarifying has proved to be a profitable operation.

It requires ten or fifteen pounds of this seed to the acre; when

the unhulled seed is used fifteen or twenty pounds. The scarified seed is best for summer or fall sowing, for the germination is more rapid. For winter sowing possibly the unscarified, hulled seed is to be preferred. We furnish this or the scarified seed at the same price.

### SEED PRODUCTION

When a seed crop is to be saved, Sweet Clover should be first pastured or cut for hay. The stock should be removed from the pasture early enough to assure the maturing of seed; if hay is made, the cutting should be reasonably early, thus assuring a larger number of branches. Of course the mower should be set high, as new shoots will come not from the crown, but from the axils of the lower leaves.

The mower, however, is not as satisfactory for cutting Sweet Clover as the binder, for the reason that too much handling is necessary. The self-rake reaper is best, but a binder can be equipped at small expense for handling the clover economically and with small loss of seed. Corn harvesters are sometimes used if the growth becomes too large to be cut with the binder.

A very thin stand produces a surprising quantity of seed when neither clipped nor pastured.

Cutting should be done when about three-fourths of the pods have turned dark, and only when damp from dew or rain, as the seeds shatter easily. For this reason, when cut with a mower, the swath should not be run over.

When cut for hay or pastured the late plants are smaller and are harvested more easily, for the binder can be used. This facilitates handling and makes it possible to use a huller, otherwise it is sometimes necessary first to thresh the coarse straw and then run the seed through the huller.

### IN MIXTURE

A mixture, about like the following, is popular: Sweet Clover, four pounds; Alfalfa, four pounds; Alsike, two pounds; Timothy, four pounds.

## RENOVATING OLD PASTURES

Worn-out pastures are often successfully renovated by disking in the fall and sowing a few pounds of Sweet Clover during the winter. Not only is the amount of pasturage increased by the Sweet Clover, but the grasses will be improved owing to the addition of humus and nitrogen furnished by the Sweet Clover. The same plan may be followed in the spring, but not as successfully. The Sweet Clover should be drilled in.

We have prepared a special chart, "Sweet Clover Questions and Answers," which will be sent on request. It contains in handy form about all the information obtainable on Sweet Clover.

### HUBAM

While this annual legume has been abused and its value to the farmer questioned by many authorities, we believe that it will take a permanent place in agriculture.

It fits in well for an emergency or regular hay and pasture crop, and can be sowed on wheat or oats.

## The True Clovers

**T**HIS classification includes Red, Mammoth, Alsike, Crimson and White Clover. The first three are of greatest importance. Red Clover is the most widely used leguminous crop in the United States. So much of the seed is harvested and sold that less care is used in buying than would be exercised if it was a comparatively unknown variety. There is always a big variation in clover seed prices, due to the very great difference in quality and the fact that imported seed can be sold cheaper. Red and Mammoth are scarce but Alsike is plentiful and the price much below the others.

## Red Clover

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*Owing to unfavorable conditions at maturing time, Red Clover did not produce as large an amount of seed as usual. Nearly all parts of the country were affected. The crop is short but we have been able to get together a considerable quantity of plump high quality Red Clover — all home grown.*

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**R**ED CLOVER was first cultivated in Persia. It was carried to Spain and Italy in about the sixteenth century and was soon introduced into Holland. From Holland it was taken to England, and in about 1770 to Pennsylvania.

Red Clover is often called June or Medium Clover, the latter term to distinguish it from Mammoth.

Of all clovers Red is the most popular. Many feel that there is little need for other clovers where the Red can be grown. It is widely distributed through Europe and the United States and Canada, but unfortunately many soils that formerly grew Red Clover are now finding its cultivation difficult.

This is caused by one or more of the following conditions: plant diseases or insects; the exhaustion of potash; acidity; lack of nitrogen gathering bacteria; lack of humus or organic matter.

Humus provides ventilation, binds the soil together and increases its water-holding capacity, prevents winter-killing and furnishes food for bacteria.

Much can be done to make "clover sick" soil again productive by restoring organic matter through the application of stable manure. Liberal application of lime will sweeten it and make conditions favorable for bacteria. Fertilizer rich in phosphorus and containing some potash is best for most soils. Even though Red Clover has been raised on the field in former years, in many instances it will be found advisable to inoculate.

It should be borne in mind that imported red clover is more susceptible to disease than home grown seed.



After clover is several weeks old the roots shorten and draw the crown of the plant into the soil. This protects the plant and prevents winter-killing.

While Red Clover is recognized as a biennial, if favorably located it may last four or five years. It is observed that, when sowed with Timothy, the third year from seeding the stand is about half and half; the fourth year mostly Timothy.

Red Clover has always been popular for pasturage because it starts new growth quickly when eaten off. It gives a large yield of hay which is easily cured. The second crop can be utilized for hay, pasture or seed.

Red Clover is not adapted to stiff clay or worn-out soils. On these soils Mammoth is much to be preferred.

Best results are usually obtained from spring sowing, and for best germination the seed should be drilled in. In some sections of the country where spring sowing fails, summer seeding has proved advisable. Especially is this true south of the Ohio river. The plants escape the hot, dry weather of midsummer which often kills or weakens them.

It is often the practice to cut Red Clover too late. If the bloom begins to ripen the plant is injured. If cut when just in bloom the second crop will be heavier, there will be no danger of harming the plants and the hay will be more palatable. Red Clover, after being cut, will not stand as much rain as either Alfalfa or Soy Beans. Thus it pays to cure it and get it in the mow or stack as quickly as possible. If cut in the afternoon when it contains less moisture it can be teded the next morning and windrowed, shocked and mowed the same day. Partly cured Red Clover hay will not stand a thorough soaking.

Red Clover matures about the same time as some of the worst weeds, as for instance Buckhorn, Wild Carrot, Sorrel and Dodder. For this reason it is more difficult to find Red Clover free from weeds than any other variety.

We give especial attention to Red Clover seed because we sell more of it than any other. We have always been able to supply seed practically free from weed seeds and waste matter and we expect to continue to do it.

Quite often a customer sends us a sample of Red Clover which he can buy at a less price than ours. Invariably this seed contains Buckhorn and other weeds. No one has, however, ever told us that he could buy better seed than ours. We quote from Farmers' Bulletin No. 260:

"First-class Red Clover seed should contain very few weed seeds. This means at most but a few hundred and should mean less than 100 in each pound. Even this seems a large number, but clover seed production has not yet received that special attention which insures perfectly clean seed, and a few hundred weed seeds per pound constitute a small number when compared with the thousands and tens of thousands of weed seeds per pound found in many samples of Red Clover seed."

The Department of Agriculture is constantly warning farmers not to sow imported Red Clover, but many carloads come into the country each season. While some of it looks good and is cheaper than home grown seed, it is always unsafe to sow. Any Experiment Station can identify it from sample.



Have grown a little careless about the farm seeds since I am engaged in another line but must say I have lost by not ordering seed from you, as your seed always produces a good stand.

T. H. BROWN, *Reynoldsville, Pa.*

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The seed was nice and clean and is growing fine. Scott's Seed has always been the best and a good reputation is not born in a day. Many thanks for the trouble and interest shown in my order and also for your very prompt shipment.

VERNON POTTER, *Grassflat, Pa., Box 15.*

## Mammoth Clover

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*While Mammoth Clover is not quite as plentiful as usual, the quality of the crop is extra good and we are purchasing this year some of the best Mammoth that we have ever had. Another thing — we are guaranteeing it to be true to name for the reasons explained below.*

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**M**AMMOTH CLOVER, also called English, Sapling, and Pea Vine Clover, like red, is a biennial, but where soil and climate are particularly favorable, or where prevented from producing seed, it is likely to show a perennial tendency.

As Mammoth Clover matures about three weeks later than Red, it is better suited for sowing with Timothy or Red Top, Red Clover being overripe at the proper time for harvesting either Timothy or Red Top.

Mammoth grows to a greater height than Red, has larger roots that penetrate to a greater depth, and for this reason will often do well on soils where medium clover will make an unsatisfactory growth, the vigorous growth of the Mammoth enables it to gather more plant food from impoverished soils.

On poor soils Mammoth makes more desirable hay than on good because the growth is not so rank. On sandy soil it is superior to Red, which it excels as a green manure crop on account of its large growth of roots and stems. The long roots enable it to withstand drought and winter-killing better than Red.

While the hay is coarser than Red Clover hay it has the advantage of ripening later when there is less danger from rain.

If a seed crop is to be made the clover should be pastured until about June first or clipped, otherwise the plant is likely to exhaust itself in the production of stems and leaves. If the weather is especially dry, care must be used in pasturing as the

plants may not receive enough growth to produce a large seed crop. On very poor soils it may not be necessary to pasture at all.

Mammoth makes a much surer crop of seed than red. It matures seed about three weeks earlier.

The very heavy growth usually smothers out most of the weeds and as a result we can always furnish Mammoth that is free from weed seeds. It seldom contains blasted grains.

Mammoth is supposed to be less subject to diseases than Red Clover. This may be because of its more vigorous growth and long roots which draw plant food from a great depth.

The seeds of Mammoth and Red Clover are so nearly alike that they cannot be distinguished. This likeness has resulted in much annoyance for the grower. We used to receive dozens of letters each year asking how we knew our Mammoth was true to name, most of the writers stating that they had more than once sowed Mammoth only to reap a crop of Red.

This seemed to be the common experience all over the country. We finally got tired of assuring people that they would find our seed true to name and have for several years answered this question by guaranteeing the genuineness of any Mammoth Clover purchased from us.

### ALSIKE

Alsike seems to have been first cultivated near the village of Sike or Alsike, Sweden, and to have been introduced into England in 1834. It is not known when it was brought to America. On account of its appearance and habit of growth it was once thought to be a hybrid between white and red, but is now supposed to be a distinct species.

While not strictly a perennial it usually remains in the ground for several years. Enough of the heads escape the mower and the grazing of stock to do much toward reseeding. It is not nearly as particular about acid soils as Red Clover and will withstand winter-killing much better. It should be used in mixtures on any type of soil where the seeding is to remain more than three years.

It is particularly adapted to wet soils, sometimes doing well in standing water.

It is free from the diseases that affect Red Clover.

The hay is finer than Red Clover hay and is preferred by stock but less is produced per acre.

Alsike gathers nitrogen from the air the same as Red Clover, and would be as valuable in the rotation as a soil builder except for its smaller root and stem growth.

Alsike and Timothy ripen together and the Alsike does not crowd the Timothy as badly as Red Clover does. For these reasons Alsike is preferred for growing along with Timothy. Because the Alsike does not crowd, it is often sown with Red Clover. It interferes but little with the growth of the Red Clover and should the latter fail to grow or be killed the Alsike will quite likely take its place. Often Alsike, on account of its spreading roots, will keep the Red Clover from "heaving" out. Much less Alsike than Red Clover should be used.

Except where grown for seed it is usually best to sow some other seed with Alsike, such as Timothy, Orchard Grass, Blue Grass, or Red Clover.

A good hay mixture is three parts Timothy, two parts Red, and one part Alsike.

South of the Ohio river Alsike, Red Top, and Orchard Grass make a desirable mixture for a semi-permanent pasture.

There are approximately 700,000 Alsike seeds to a pound, and 250,000 in a pound of Red Clover, so it takes much less of Alsike to sow an acre of ground.

As the seed is so small it should be lightly covered.

Probably because of acid soil, Canada Thistle, Sorrel and Buckhorn infest many of the sections where Alsike is raised for seed, so it is well to look out for these weeds when testing samples. They cannot be entirely removed in cleaning, as many of the weed seeds will be the same size as the Alsike. This is especially true of Canada Thistle.

Owing to its smaller size Alsike is hard to clean, but, by using care in selection, we are always able to furnish seed that is practically weedless.

Alsike is much cheaper than Red this year — there is a greater difference in price than we have ever known. Another thing, it

goes a good deal farther. Economy of seeding considered, it is the clover to sow in 1925.

### CRIMSON CLOVER

Crimson Clover is said to be a native of Southern Europe. It was introduced into Chester County, Pennsylvania, in 1820, but until 1880 its distribution was quite limited.

Crimson Clover is a winter annual, that is, being sown in late summer it goes through the winter in a green state, and matures its seed and dies in the spring. It will seldom stand the winters north of the 40th parallel.

Practically all of the Crimson Clover sowed in this country is imported from Europe. This means that the seed usually contains the seed of noxious weeds so that a careful examination should be made before buying. Use our test.

### WHITE CLOVER

White Clover is usually called White Dutch to distinguish it from White Sweet Clover. White Clover is a native of America.

Many alsike fields contain White Clover. When the seed is harvested the two cannot be separated. Sometimes we have this mixed seed at prices lower than when the two seeds are bought separately.

## Japan Clover

*A Blessing to the man with Poor Soil and Steep Hillsides*

FOR years Japan Clover has been grown in the South and has proven itself a valuable plant as far north as the Ohio River. Many say it will do well in central Ohio, Indiana and Pennsylvania.

It can be sowed in mixtures (two or three pounds per acre) but its most common use is on thin old pastures where it should be sowed in January, February or March at the rate of five pounds per acre.

Unlike other clovers it does well on sour soil. Japan stores nitrogen in the ground so that blue grass will re-establish itself. It will grow on any type of soil from sandy to stiff clay. On poor hillsides, washed places and in open woodlands it soon establishes itself. It affords pasture in July and August when the grasses are not growing. All animals relish it.

Japan Clover starts growing about the middle of May. As it is an annual and spreads by reseeding itself, it is adapted only to such latitudes as will furnish a season long enough to mature seed. It makes a growth of six or eight inches so can hardly be harvested for hay.

The seed comes unhulled only and ordinarily contains considerable waste matter. Scott's Japan Clover is different from that obtainable most places because it is very much cleaner.

## Extract from Scott's Soybean Catechism

**What is this soy or soja bean?** It is a tall, rather hairy, leguminous plant, somewhat resembling the ordinary field bean.

**What use is made of this crop?** In the United States, it is most largely grown for forage, although the soybean and its products are now being used in a large number of ways.

**Why should I grow soybeans?** It is a legume, therefore a nitrogen gatherer. It produces a large yield of seed, an excellent quality of forage that is relished by all farm animals, is easily grown for harvest, is drought-resistant, and is practically free from insect enemies and plant diseases.

**What kind of soil does the soybean require?** The soybean will succeed on almost any type of soil. It thrives on soils that are too acid for clovers.

**How much seed is required?** Twenty to thirty pounds to the acre if in rows. Sixty to one hundred and twenty pounds if broadcasted or drilled solid.

**How may I learn more about this valuable crop?** By reading the interesting section which follows and by writing to us or your Experiment Station in regard to any matters on which you are not clear.

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Scott's Soybean Catechism will be sent to anyone upon request. It asks and answers 36 vital questions.



## Soybeans

**O**UR specialty! Scott's Soybeans have a nation-wide reputation. The name implies superior quality. Don't fail to read this interesting section. It describes Soybeans from start to finish; tells their many advantages; the vital things to know about raising them; the different kinds and their purposes. Soybeans will fit into any farming program. Each year their use becomes more general. If you want more facts than this book contains ask for Scott's Soybean Catechism.

## Soybeans

**B**EFORE explaining some points of special interest about this wonderfully profitable crop, we wish to mention our own experience as distributors of Soybeans.

We early recognized their value as a general farm crop. We have been handling more beans each year until now the name Scott's is linked with Soybeans wherever the crop is known. We believe that we are distributing more of the early varieties than anyone in the country.

Some people have the idea that Soybeans are solely a crop for the dairy farmer. This is certainly a mistake although their value as cow feed is well known. We venture to say that there is not a farmer anywhere who cannot grow Soybeans with profit. For soil improvement alone they pay for themselves.

In buying Soybeans it is well to remember that quality counts for much. Beans often contain wild morning glory and other undesirables. Many beans, too, are put on the market before they are well cured. In such cases the germination is apt to be low.

Because we handle beans in such large quantities, have a thorough knowledge of the best producing sections and are familiar with the many different kinds so as to know their best adaptations, we feel prepared to render a little more intelligent service than most firms selling Soybeans. These same advantages enable us to sell at reasonable prices. As far as quality is concerned, we believe you will not find Scott's Soybeans excelled.

The Soybean is a native of Eastern Asia, coming from China or Southern Japan. In this country it has been an important crop for about twenty years.

Clover is so often a failure that it is necessary to find some legume that pays as large returns and at the same time is a sure crop. Soybeans not only gather more nitrogen from the air than clover, but have a larger root system. Thus even though the crop is saved for hay or is pastured instead of being plowed under, the benefit to the ground is as great as from clover, as is indicated by

the large yields of wheat and corn following a well inoculated crop of Soybeans. The Ohio Experiment Station found that wheat yielded 10.3 bushels more to the acre on this sort of ground than on corn ground.

The Soybean is used for green manure, hay, forage, grain and silage.

It is probably the most desirable leguminous catch crop.

Invaluable to fill in with in case of failure of clover seeding or other spring crop.

The Soybean requires from 90 to 150 days to mature. Some of the varieties will mature as far north as Northern New York, but the plant having originated in a warm climate, many varieties will not ripen except in the South.

It will grow in poor soils and increases the fertility of the land by means of the nodules on its roots. It endures drought, and stands excessive moisture fairly well.

It is more frost resistant than corn or field beans. Light Spring frosts will not kill the young plants and they are seldom injured by frosts in the fall when maturing.

The plant is moderate in its fertilizer requirements. Lime, applied previous to seeding, should be used on acid soils, though liming is not as essential as with other legumes.

As might be expected, trials made at experiment stations show that for milk and butter production Soybean hay is nearly as good as alfalfa hay. Cattle will leave corn to eat it.

The forage produced by the Soybean is higher in protein than any other annual crop of equal yield.

Meal from the Soybean has none of the bad effects of cotton seed meal. Nothing will equal it for topping off cattle. When mixed with six parts of corn, a bushel of Soybeans has the feeding value of three bushels of corn, that is, six bushels of corn and one bushel of Soybeans amount to the same thing as feeding nine bushels of corn. We can supply ground Soybeans.

Experiment stations are urging that Soybeans take the place of oats in the rotation. By planting corn and beans together, then Soybeans alone, either for hay or grain, followed the next year with wheat and clover, a legume is on the ground continuously. As an average crop of Soybeans, if inoculated, will

store up as much as 125 pounds of nitrogen per acre, it can be seen what they will do for soil improvement when used in this way.

### SEEDING

*Don't forget that Soybeans vary in size. One bushel per acre of one kind may be equal to two bushels per acre of another.*

In seeding Soybeans the seed bed should be prepared about the same as for corn, cultivating at intervals in order to kill weeds, for, like alfalfa, young Soybean plants are easily crowded out by a rank growth of weeds. They should be planted about corn planting time, but not until all danger of frost is past, and ground is warm. The seed should be planted not over 1 to 1½ inches deep. If a seed crop is expected it is best to plant as early as possible, but for hay or green manure even into August is not too late, the variety used making some difference. Although solid drilling requires more seed to the acre, and in wet seasons there may be some annoyance from weeds, many growers prefer this manner of planting for hay, silage or green manure crops. From 4 to 8 pecks are used. Laboratory experiments in New Jersey point to an increased or intensified use of atmospheric nitrogen where legumes are planted close together. When so planted there is possibly a greater recovery of nitrogen from the air per acre. Thick seeding is best for sandy soils. Planting in rows saves seed and permits cultivation.

Planted after wheat or oats are removed they will usually produce a paying hay crop. In any case they will be invaluable for soil improvement or for pasture.

In weedy ground it is best to plant in rows, but Soybeans drilled solid can be cultivated with a weeder or slant-tooth harrow. This should be done during the middle of the day when the beans are dry and tough. Do not cultivate until the beans are three inches high, nor after they have reached a height of eight inches.

For seed the beans can be drilled in rows and cultivated. A grain drill can be used for drilling in rows by covering up the necessary feed holes. This requires from 15 to 25 pounds of seed according to the size of the beans. The rows should be 28 to 30

inches apart, with the beans 2 or 3 inches apart in the rows. When a corn planter is used, some recommend attaching a shoe at the planter runner for regulating the depth. For solid drilling use the oats feed of an ordinary grain drill adjusted to drill, say, 75 pounds per acre. Solid drilling for seed production is becoming increasingly popular, using in some varieties as much as two bushels per acre.

### CULTIVATION

As the entire bean is pushed out of the ground in sprouting, in case a heavy crust forms, it may be necessary to harrow the ground lightly before the beans sprout, or even as they are coming through the ground, but this should be avoided if possible. Unless weeds are getting the best of the beans they should not be disturbed until three or four inches high, when they are quite tough. When planted in rows the beans can be cultivated until blossoms appear, but should not be disturbed after this.

### IN CORN

When planted with the corn Soybeans may be "hogged off" or "lambd off," or cut with a binder for putting in the silo. When the former, the lambs or pigs are turned in when the corn is about ready to cut for fodder and the Soybeans have begun to ripen. Pigs up to 50 or 60 pounds and the lambs will eat the beans without injuring the corn if it is desired to harvest it. If the entire crop is to be pastured, sheep or hogs of any size may be turned in. They take on fat and improve in general condition wonderfully. It is a good plan, if convenient, to feed Soybeans to stock a few days before they are put into the field, so that they will become accustomed to, and eat the beans readily, otherwise the larger animals will favor the fresh corn. Beans are so rich in protein that it is not necessary to feed tankage or any other protein feed.

For hogging off or for silage the beans are planted right in the rows with the corn. A special attachment can be gotten for the planter that makes it possible to do the whole job at once, or the corn may be drilled first, at the regular depth, and then the drill filled with beans, going back over the corn rows, being care-

ful to plant the beans no deeper than one inch. The corn is planted about 18 inches apart, and the beans about 6 inches apart in the rows. This requires 6 to 10 pounds of beans. If the planter has a fertilizer attachment the beans may be mixed with the fertilizer or with dust, drilling the mixture as fertilizer. Corn and beans may be mixed together and drilled, but this is not a very satisfactory arrangement.

Soybeans should be planted in all corn fields when possible to utilize them, unless the fields are inclined to be very weedy. As they gather nitrogen from the air and the corn gets some of this, the growth of the corn is not lessened, and even though it were, the benefit to the ground and the extra forage would more than offset the loss. At least one ton of silage or soiling is added to the field. Many report yields of two tons, a large profit at practically no expense.

We sell a good many Soybeans for broadcasting in corn just before the last cultivation. Under normal conditions this crop is worth while for hogging down or for soil improvement. Some plant them in corn each year for soil improvement, so that corn can be grown on the same field year after year. This late in the season we usually have a few varieties left that we can sell at a special price.

#### FOR SILAGE

The addition of the Soybeans gives silage a much greater feeding value, as they contain 145% more digestible protein and 40% more fat than the corn silage. Of course, Soybean silage contains a very much greater amount of protein when the beans are allowed to form in the pods. It should be kept in mind that, like corn, different varieties of beans have different dates of maturity, and that the variety to be selected is the one that not only makes a maximum growth of vine but also develops beans by the time the corn is ready for putting in the silo. If the beans are grown in separate fields three loads of corn run through the cutter, followed by a load of Soybeans makes a well-balanced feed. They can be used much riper than for hay, as they go into the silo without curing, and the juices of the corn soften the stems. The harvesting is done with a binder just as the corn alone would be harvested.

The addition of Soybeans to the silage makes the purchase of oilmeal and tankage unnecessary and greatly increases the flow of milk.

Cornell University in a series of experiments found that non-leguminous plants grown with legumes contained a great deal more protein than when grown alone. As an example, oats grown with field peas contained 7% more protein than oats grown alone; timothy with red clover 44% more. It seems reasonable to suppose that corn grown with Soybeans should contain more protein than when grown by itself, especially if they are inoculated.

### FOR HAY

Soybean hay in curing will stand more unfavorable weather conditions than red clover or alfalfa. The plants should be cut when the pods begin to fill and a few yellow leaves are showing. Well-matured hay may not be so palatable, but is more easily cured. When once started the harvesting should be completed in as short time as possible, as the leaves fall rapidly when ripe. They may be cut with a mower and left on the ground until wilted; then raked up and placed in tall loose cocks for a week or ten days. A good method, however, is the use of the self-binder, setting the small bundles into cocks to cure.

### FOR SEED

The seed cures to best advantage on the stalk, so beans should not be cut until absolutely necessary to prevent loss from shattering. A good guide is to wait until most of the leaves have fallen off. If the beans are well ripened it is possible to thresh in a day or two after cutting. If the beans are not allowed to get thoroughly ripe — and some varieties must be cut early or too many beans will be lost — the beans should be kept in cocks until thoroughly cured, otherwise the seed may be damaged when stored in bins or sacks. Cut when dew is on the ground. Some of the large growers of seed cut with a binder just as soon as the top leaves turn yellow, allowing the small bunches to lie three or four days, according to the weather, and then put in small shocks, reshocking at the end of ten days if the weather is

favorable. In four or five weeks the beans are thoroughly cured. This leaves a large amount of leaves on the straw, most of which are lost if the beans are allowed to ripen thoroughly. Some are now using the Southern Soybean harvesters, which gather the beans from the standing stalks.

### THRESHING

An ordinary grain separator can be used by removing the regular concaves and using a blank or board. The speed must be cut down so as to avoid splitting the beans. Special bean separators can be purchased at reasonable prices. Soybean straw is relished more than any other straw by sheep, cattle and horses.

We find that a great many of our customers are using corn shredders for threshing their beans. The only change necessary is to loosen the snapping rolls and raise the back part of the shredder about four inches. Feed slowly about one load of beans per hour and keep the screens clean. While this operation is slower than using a separator, practically no beans are cracked.

### INOCULATION

There is no question at all but that Soybeans should be inoculated. They may grow nearly as well without inoculation, but will do this at the expense of the soil. When inoculated the roots become filled with large nodules, which make them the ideal crop for soil building. There is also little doubt that when they are inoculated the protein content of the plant is greater. For reasons stated before, we believe it is especially important to inoculate Soybeans that are to be planted with corn. In 99 cases out of 100 "no inoculation means no nodules."

### SOYBEANS IN MIXTURES

Soybeans may be mixed with cow peas, sorghum or sudan grass, making a balanced forage; about ten pounds of sudan grass or fifteen pounds of sorghum with three pecks of Soybeans broadcasted, make hay that is easily taken care of.



## YELLOWS

## ITO SAN

This small yellow bean is one of the best known varieties. It is a heavy seed producer, grows to a height of about 24 inches and matures in about 105 days. Owing to its early maturity, it is excellent as a catch crop. A good variety to sow with corn for hogging down. Although rather short it ranks well as a hay producer.

## MANCHU

This 110 day bean was not brought to this country until 1913, but it promises to become the most popular all around variety. It produces less hay than the varieties mentioned under WILSON, but it is early enough always to mature seed and is no doubt the largest seed yielder in the north, and a satisfactory producer of early hay.

## A. K.

This bean was first grown by the Illinois Experiment Station in 1914. It is a good seed yielder and especially desirable for hogging off as it matures at about the right time for most corn varieties. There is no better early hay bean. Matures in about 110 days.

MIDWEST (*was Hollybrook*)

Owing to the many names under which the Hollybrook was sold, such as Mongol, Medium Yellow, etc., the Soybean Growers Association have renamed it "Midwest."

This is one of the best known and most popular varieties. It is a general purpose bean. Makes an excellent yield of seed and is probably the best known silage bean. Matures in about 115 days, being late enough to produce an abundance of fine quality hay. The most economical hay bean to sow this year.

## HABERLANDT

Although the stems are rather coarse this bean makes good hay as it is bushy, and being stout and erect there is no better bean for silage, if late maturity is desired. It ripens in 125 days. It is a heavy seed yielder.

## MAMMOTH YELLOW

This is a late southern grown variety, maturing in about 145 days. It will not ripen beans north of the Ohio River, but is grown to some extent for hay as far north as the New England States. We recommend an earlier kind for either hay or silage.

## BROWNS

### EARLY BROWN

This is practically the same bean as the Ito San but seems to be hardier.

### OHIO 9035

This is an erect, bushy plant of medium height. It probably resists shattering better than any other bean. A rather large seed producer suitable for hay, pasture or silage. Matures in 125 days.

## VIRGINIA

Although inclined to lodge on the richest soils, this has become one of the best known varieties for both hay and silage. It probably makes a higher growth than any other kind, the plants being slender, with vining tendrils. Matures in about 125 days.

## BLACKS

Most of these have fine stems and leaves, and are desirable for hay and for silage, but many growers prefer the larger and coarser yellow beans for the latter purpose. In blacks the same variety often goes under several different names. We have found the Wilson, Sable, Sooty, Jet, Peking and Arlington to be very much alike. Experiment Station reports vary greatly as to time of maturity and other characteristics.

### PEKING OR SABLE

While the name Sable is better known, in order to avoid confusion it is hoped that Peking, the original name, will be adopted for this very popular bean. The Peking has fine stems and

abundant foliage, which make it a particularly desirable hay bean. It is probably a heavier seed yielder than other black varieties. Matures in 120 days. (See special mention under Wilson.)

### WILSON

Wilsons, which mature in 120 days, are the best known hay bean, but the 1924 crop is very much less than usual. This, coupled with the big demand for Wilsons has caused the price to advance until it is more economical to plant some other varieties, which command a lower price and at the same time go much farther because of the greater number of beans per bushel.

A bushel of Wilsons contains 144,000 beans. There are 194,000 Ebony beans per bushel. Of nine experiment stations reporting, four show Ebony producing more hay than the Wilson, five report less.

The Peking, which matures in the same number of days as Wilson, at seven out of twelve stations produced more hay. The seeds are only half as large.

Two stations show Midwest as yielding more hay than Wilson, four less. Midwest, 243,000 seeds per bushel, 70% more than Wilson and price very much lower.

Seven stations show Virginia making more hay than Wilson, three less and one an equal quantity. Virginia, 207,000 seeds per bushel.

### EBONY

This is a stout, erect growing, bushy variety with fine stems. It is somewhat earlier than the Peking and produces about the same amount of seed and hay. Matures in 115 to 120 days.

### BLACK EYEBROW

Another early variety maturing in 105 to 110 days. Adapted for hogging off and for early hay and seed production.

## GREENS

### MEDIUM GREEN

This was at one time the best known bean but is gradually being discarded as a seed producer for the reason that in unfavorable seasons it suffers more than other varieties and at all times shatters so badly that there is a big loss in seed. The seed is always scarce and high in price. As a substitute we strongly recommend the Midwest described under yellow varieties.

### MIXED

Usually we can furnish mixed beans at a lower price than separate varieties.

### FIRST AND SECOND CHOICE

We attempt to furnish practically all varieties of Soybeans and will have a few not listed here but inasmuch as so many beans are much alike, we suggest, especially later in the season, that in ordering first and second choice be given.

We have the most improved machinery for cleaning them and believe we are furnishing better beans than can be purchased most places.

We give dates of maturity for Ohio. The number of days required for the ripening of beans will vary somewhat with the locality and weather conditions.

Ask for "Soybean Questions and Answers."

### VETCH

Two kinds of Vetch are of agricultural importance in this country: Common Vetch (*Vicia Sativa*) and Hairy Vetch (*Vicia Villosa*). While there are both Winter and Spring strains of common vetch, the Spring is the only one sowed to any extent in this country, except along the Pacific Coast. It is an annual.

Hairy Vetch, also known as Sand and Russian Vetch, is a Winter Annual. It is especially well adapted to sandy soils and will do much to build up any poor soil. It will withstand very

cold weather, and is without doubt the safest and best fall sowed cover crop for northern states. It is more drought resistant than most legumes. Being a great nitrogen gatherer, it should be inoculated.

Hairy Vetch is sown alone or with wheat or rye as a supporting crop. Where the winters are severe the nurse crop is indispensable.

Grains of Hairy Vetch are hard and require more moisture to cause germination than wheat or rye. For this reason, when planted in a dry season, the nurse crop sometimes makes an excellent stand while the Vetch shows only a few plants.

Many sow Hairy Vetch in July, but the usual practice is to sow it during the latter part of August or up to the middle of September with rye. Ten to thirty-five pounds of Vetch are sown with three pecks to one bushel of rye. The more Hairy Vetch the more the soil will be improved.

If Hairy Vetch is seeded earlier than it is safe to sow rye, a better stand is assured. The rye can be planted later.

Hairy Vetch grows rather slowly in the fall, but recovers quickly in the spring, and makes an abundant growth to be plowed under, pastured or cut for hay.

Hairy Vetch may be seeded in the spring for pasture, either by itself or with a nurse crop, such as oats or barley. Sometimes it is mixed with Canada peas and oats as is Spring Vetch. In any case it will furnish excellent summer pasture.

### CANADA FIELD PEAS

Field Peas are usually spoken of as Canada Field Peas, the name having been given when the plant was comparatively unknown and the seed mainly imported from Canada. However, few varieties originated in that country.

Being a legume they are soil improvers and furnish a ration rich in protein. They can be sown for soiling and fodder, and are unsurpassed for green manure. They are usually sown with oats, about one bushel of each, thoroughly mixed. This combination makes a very desirable hay or soiling crop, the yield being quite large.

Unlike cow peas they should be sown as early as possible in the spring, and do best farther north than Central Ohio.

One bushel of Field Peas, one bushel of Oats, four pounds of Dwarf Essex Rape and eight pounds of Sweet Clover make excellent hog pasture that can be sown in the spring, the pigs being turned in when the oats and peas are about eight inches high. The clover may be omitted.

### COW PEAS

The Cow Pea, a native of Asia, was introduced into this country over a century and a half ago, and soon came into general use in the Southern States. Here it has remained a successful crop, owing to the fact that frost seldom interferes with its growth of foliage; however the Cow Pea has gradually found its way into northern latitudes, where it has been of high value as a forage crop and a soil improver.

### TIMOTHY

This grass was first brought to this country from England by Timothy Hanson of Maryland in 1720.

Timothy is distinctly a grass for hay rather than pasture, as it does not take kindly to trampling and close grazing. It is our hardiest and best known grass and is a part of all mixtures.

The facts concerning seeding, harvesting, etc., are so well known that it is unnecessary to enumerate them.

Often Timothy seed contains a considerable amount of sorrel owing to the fact that both grow on acid soil. It is well to be on the lookout for this as well as for Canada thistle which is not easy to identify in Timothy seed.

In Timothy seed you will nearly always find a small amount of alsike, and quite often grasshopper specks. It is not possible to entirely remove either of these, and while they hurt the looks of the seed, they make no difference in the quality, and should not be confused with black plantain, which is somewhat triangular and flat.

One peck is the amount usually sown per acre, or if clover is to be sown in the spring — a bushel to six acres. A satisfactory

mixture is 7 pounds Timothy, 7 pounds Red, and 3 pounds Alsike.

This season we can supply Timothy with a streak of alsike at the same price as pure Timothy. The alsike helps the hay wonderfully.

### PASTURE MIXTURES

A mixture gives a longer period for grazing, furnishes a greater variety, yields a crop richer in protein and makes a better balanced ration than would the grasses composing the mixture if sown separately. But it does not pay to sow in a mixture any grass that will not do well alone. In choosing the grasses to go into the mixture such varieties should be selected that the good qualities of one will balance points in which the other is deficient. For example, the grass that forms roots on the surface is not desirable from the standpoint of fertility; another may send its roots fairly deep, but not be as suitable for pasture grass as the other. The two make a combination well adapted to grazing and maintaining the fertility. Pasture Mixture grasses should be selected with respect to their periods of growth so that grazing may be done through the longest possible period.

A small amount of various clovers should be included in the Pasture Mixture as legumes not only feed the grasses by pumping plant food from great depths to the surface, but also supply them with nitrogen drawn from the air, and, no doubt, greatly increase the protein content of the grasses. A small amount of Alfalfa will do much towards getting the soil inoculated. White clover will grow where nothing else will and Alsike does well in wet places. Due consideration must be given to the fact that the kinds of grasses that should be used depend upon the locality. Even in a single field parts will be found that are adapted to grasses that will not thrive in the rest of the field.

Salting patches of such weeds as quack and wire grass to induce close grazing will often rid the field of these pests.

Those weeds most distasteful to cattle thrive best in meadows.

Sow pasture mixtures at the rate of 20 to 25 pounds per acre.

## MEADOW MIXTURES

Meadow Mixtures, in contrast with pasture mixtures, should contain only grasses that mature at about the same date.

For reasons already stated it is more profitable to sow a mixture of several grasses, including clovers, for hay rather than to sow one kind alone, for then the roots fully occupy the ground to a considerable depth, each variety getting its food from a different level, the legumes acting as feeders for the grasses.

## EARLY PASTURE AND SOILING MIXTURE

Annual pasture mixtures have become popular. More energy value from the same acreage can be procured when these are made use of as soiling crops. Canada Field Peas and Oats probably take first rank. Rye and Vetch as well as Japan Millet and Dwarf Essex Rape are also used. Any of these can be added as desired to the following mixtures which we recommend:

No. 1. 8 pecks oats, 4 pecks field peas.

No. 2. 4 pecks oats, 3 pecks barley, 3 pecks rye.

No. 3. 6 pecks oats, 5 pounds sweet clover, 5 pounds alsike clover, 6 pounds timothy.

## KENTUCKY BLUE GRASS (*Poa Pratensis*)

This variety of grass is native both to Europe and to North America, and, along with two or three other similar species, is the greatest American pasture grass. Authorities are of the opinion that it is grown more or less in every State in the Union. It makes the best sod of any of our grasses and does fairly well on a wide range of soils, although it is better adapted to clay than to sandy loam. It is a very nutritious pasture grass, but has little value for hay. The fact that it is both an early spring and a late fall grower makes it valuable for grazing at both ends of the season. Kentucky Blue Grass constitutes a part of practically every lawn and pasture mixture.

When sown alone, from 30 to 40 pounds per acre should be used.



### ORCHARD GRASS (*Dactylis Glomerata*)

Orchard Grass, known as Cocksfoot in England, is a native of Europe. Its American name is due to the fact that it is successfully grown in partially shaded places.

Orchard Grass will stand more drought than Kentucky Blue Grass, but is not especially adapted to dry land conditions. It starts very early in the spring and grows rapidly so that it is valuable in a pasture mixture. Orchard Grass is inclined to grow in tufts or bunches so that it will not permit an even sod. Although of high nutritive value it is not relished by stock as well as Blue Grass and Red Top. It thrives best on rich, well-drained loams and makes a good growth in shady places. Twenty-eight pounds is the amount usually sown per acre.

It is seldom possible to get Orchard Grass that does not contain a considerable amount of dock and sorrel and quite often buckhorn, all undesirable weeds.

### RED TOP (*Agrostis Alba*)

Red Top belongs to a class of grasses that are very widely distributed over the globe. It is a perennial which ranges in growth from a few inches to three or four feet according to the condition of soil and climate. It starts later in the spring than Kentucky Blue Grass, grows slower and matures later. Red Top is valuable for pasture and hay, but does not equal Timothy. While adapted to a great variety of soils it does especially well on wet bottoms and should always be included in mixtures for such land.

About 15 pounds of clean Red Top should be sown per acre.

### MEADOW FESCUE OR ENGLISH BLUE GRASS

This deep-rooting strongly perennial grass is not better known because sowers have clung to Blue Grass, Timothy and Red Clover in mixtures. We recommend it strongly for all mixtures. Its deep roots will prevent other grasses from winter-killing.

### MISCELLANEOUS GRASSES

Besides the grasses already mentioned, we are able to offer

such varieties as are in general demand: Canada Blue Grass, Tall Meadow Oat Grass, Rye Grass, and all imported fancy grasses.

### LAWN SEED

We are entering upon an age of good lawns. In the past anything that was green seemed to answer the purpose, but now we look at the matter differently.

Even Real Estate firms have come to realize that an attractive lawn helps to sell a house. It isn't that the grass in itself is so valuable, but a humble looking house with a big velvety lawn becomes a *home* and homes are worth more than houses.

To make and maintain a beautiful lawn is not the easiest thing in the world, but our booklet "The Seeding and Care of Lawns" tells how to get the most out of your efforts and expense. We will gladly send you a copy on request.

It is "good lawn insurance" to sow Scott's Lawn Seed. We do not believe there is a purer or better mixture on the market. Considering that fact you can't make a more economical purchase. The price is fifty cents per pound, postage paid. A pound will go twice as far as a pound of ordinary lawn seed.

### MILLET

The term Millet takes in a large group of forage plants, the Foxtail being the one most widely known in this country. To the Foxtail group belong the Common, Hungarian, Golden, and Japanese varieties.

### GOLDEN MILLET

This is the most largely used variety, being grown to a great extent in the West, most of the seed coming from that section.

Thirty-five to fifty pounds per acre.

### HUNGARIAN MILLET

This is smaller and earlier maturing than the Golden. The hay is somewhat more desirable as it is not as coarse. Thirty-five to fifty pounds per acre.

### DWARF ESSEX RAPE

This valuable plant has been extensively grown in this country during recent years only.

The cost of sowing is very small as only four or five pounds per acre are required.

It grows from 1½ to 4 feet high and makes a large amount of forage for sheep, hogs or cattle.

### SUDAN GRASS

Sudan Grass has become increasingly popular because it will grow on almost any kind of ground, will withstand drought, and yields abundantly. It will make a crop on less moisture than any other grass. It is an annual of the sorghum family, but produces several times as much feed as Sorghum or Millet. It is fully equal to Timothy as a feed. It is used for pasture, soiling, ensilage and hay. While it is a very heavy grower, the hay is not coarse and it is relished by horses, cattle and hogs.

When all of the smaller grasses are withered on account of dry weather, Sudan furnishes plenty of green, rich pasture. It is particularly desirable in any ground which does not hold the ordinary pasture grasses. It should be sown about two weeks after corn planting time, with a grain drill or broadcasted. Fifteen to twenty pounds per acre is required unless drilled in rows to be cultivated for seed, when four pounds per acre are sufficient.

The first crop is ready for hay in from sixty to eighty days. It should be cut when in bloom, although cutting may be done a little earlier when the plant has started to head out. The second crop should be ready in forty-five days. Two crops are all that can be expected in the North although as many as four are harvested in the South. The plants stool remarkably.

## Corn

OLD-FASHIONED farmers believed that stock did better on yellow corn than on white. Experiment stations, basing their conclusion on chemical analyses, told the farmers that there could not possibly be any difference; for stock feeding yellow corn and white corn were of precisely the same value.

The Wisconsin Agricultural Experiment Station has made scientific tests recently, using the effect of the two on the growth of pigs as a basis of judgment. These tests have invariably shown that under fall conditions yellow corn supplemented with whey, skimmed milk, or linseed meal, is the more profitable, and that pigs in the "dry lot" fed on white corn with skim milk made less growth and often became rickety, (a condition sometimes called paralysis or rheumatism). Pigs were carried from 50 or 60 pounds to 200 pounds weight on yellow corn with a greater gain per day and at a less cost than shown for a similar growth on white corn.

Fat-soluble vitamins that are necessary to the growth of all young animals are found in yellow corn but not in white. These vitamins are abundant in butter fat, are found to a limited extent in tankage and meat-meal, but seem to be lacking in whey, skimmed milk, and linseed meal. Animals on pasture and green hay do not suffer from vitamin deficiency; the trouble is entirely with pigs under winter conditions where they cannot obtain green feed. Tankage and meat meal used as supplements to white corn do not entirely make up the deficiency.

The Wisconsin experiments showed that white corn and skim milk could be fed to pigs by adding a small quantity of chopped legume hay. They used alfalfa chopped in a silage cutter with an alfalfa screen. A small amount of hay is suggested because the digestive tract of young pigs is not adapted to dry roughage.

Five per cent of alfalfa added to yellow corn and tankage showed a gain in rate of increase and a reduction in cost. The further addition of linseed meal to this ration was still more satisfactory.

In closing their discussion they recommended that "every hog

and pig in Wisconsin get legume hay each day when not on pasture, unless they are fed yellow corn and dairy by-products.”

White corn seems to be as good as yellow for horses, dairy cattle, beef cattle and sheep, if they are fed ordinary well-balanced rations, including plenty of good green-colored hay or good silage.

\* \* \* \* \*  
 The best insurance against loss of your labor in growing corn is being certain that you plant good seed. No one ever produced a good corn crop from poor seed.

A maximum yield can be expected only when there are no weak or missing stalks. To plant a bad ear means about 900 weak, barren or missing stalks to the acre.

Cultivation, fertility of soil and drainage affect the production of corn but the crop depends first upon the selection of seed.

It is necessary to keep down such rank growing weeds as fox-tail, cockle, ragweed, etc., as well as the smaller weeds in order to save the moisture and fertility of the soil for the corn, which needs both in abundance.

Experiments have shown that nearly always shallow cultivation is preferable to deep. In no case should corn that has reached a height of 2 or 3 feet be cultivated deeper than 4 inches. By the time the corn has reached this height the roots have spread from hill to hill. Probably 2 or 3 inches is deep enough to kill the weeds and at the same time miss the roots.

Cultivation aerates the soil and keeps it warm by preventing the evaporation of moisture.

The butt grains are fertilized first, and the pollination of the grain proceeds in regular order towards the tip. Owing to this delay in development the tip grains are thought to vary from type more often than the grains on the rest of the ear.

Experiments conducted by the Kansas Experiment Station in the field show that 90% of the middle grains produce plants while only 86% of the butt grains and 70% of the tip grains produce plants.

Thus corn should always be carefully butted and tipped by hand before grading, for no grader will entirely eliminate these undesirable grains. If they are not removed the planter is likely to drop the seed unevenly which will cause a smaller stand, as a

uniform number of grains to the hill or space must be planted to insure the largest yield.

Corn should ripen early enough to escape frost and late enough to make use of all favorable growing weather.

The smaller early types are now believed to be more favorable for filling the silo than the larger ensilage corns. To give best results silage must have a larger percentage of nutritive value than is found in the immature sappy fodder of southern sorts. The ears should be ripe enough to be well dented and not too soft.

A few years ago we grew and began to sell a not very well known, and unnamed variety of corn that had been grown in a near-by county for a great many years. This corn gave better satisfaction in different parts of the country than any we had ever handled. Its popularity increased as it received a larger distribution, and as we have always had great difficulty in furnishing pure corn (inasmuch as there are a great many different types growing under the same name) we sold this variety only last season. This year, owing to the scarcity of good seed corn we will have several other early kinds.

### LITTLE COB YELLOW DENT

This is an early corn with a very small cob. The ears average 9 inches in length. Although a yellow corn, every cob is white. The grower who began raising it forty years ago thought he liked white cobs better than red. It is carefully selected, high-bred corn and as we sometimes find a single ear of Flint in a field we suppose there was a mixture of Flint in the original selection. This may account for its very small cob and the fact that it matures early and thoroughly.

For a quick-ripening, all-around corn we know of none that will give better satisfaction. We recommend it for early ensilage as the stalk contains more leaves than other varieties. If you are not entirely satisfied with the corn you are growing, we suggest that you give this variety a trial. It matures in about 110 days. We have about discontinued selling late varieties. The percentage of failures is too great. We believe there is no variety that will surpass Little Cob as a general all-around corn.

### EARLY YELLOW DENT

This is a medium size early corn and quite popular in many sections of the country.

### LITTLE CLARAGE

This is one of the very earliest yellow varieties. There is practically never a season when this corn fails to ripen long before frost.

### IMPROVED CLARAGE

A name carried by many different types of yellow corn. Ours matures in about 115 days.

### McGINNIS

McGinnis somewhat resembles the White Cap. This is one of the earliest white varieties, the grain being somewhat yellow like the White Cap. It nearly always ripens before the very earliest frosts.

### ENSILAGE CORN

In ensilage corn we can supply the Virginia or Blue Ridge type. This is one of the best ensilage corns. It makes a large growth of thick succulent fodder.

We can also furnish the Eureka.

## Wheat

OWING to the fact that a threshing machine goes from one farm to another always carrying at least a few grains from each place, it has been extremely difficult to supply wheat that is unmixed, but by specializing in the excellent varieties developed by the Ohio Experiment Station, we are able to furnish seed that is practically pure. The three varieties, Trumbull, Fulhio and Gladden have become very popular in other states than Ohio owing to the fact that they are all good milling wheats and large yielders.

Wheat should be sown two bushels to the acre, as it has been shown through many tests that where this amount is used more profit is realized than where six, seven or nine pecks are sown. There is absolutely nothing in the claim that a peck or half-bushel of certain varieties is enough for an acre.

### TRUMBULL

This beardless variety is a selection from Fultz. It is a smooth, semi-hard wheat, much liked by millers; and what is more interesting to the grower, a large producer. Probably more of it is sold in Ohio and neighboring states than any other kind.

### FULHIO

This is another Fultz selection with a stiff, easily handled straw, and is a high yielder.

### GLADDEN

This is a pure line selection of Gypsy, developed by the Ohio Experiment Station. It has a very stiff straw, is a large yielder, and as a milling wheat is above the average. It is bearded, with a white smooth chaff and red kernel.

### NIGGER

This is a bearded, hard wheat very much favored by millers.



It is a large yielder and usually tests higher per bushel than any variety we know of. The grains are larger and plumper than most other winter wheat. We cannot recommend this variety too highly.

### SPRING WHEAT

We sell the Marquis variety.



The Medium Green Soybeans arrived and all planted with a grain drill, stopping every other hole. Two years ago I used some for green manure and although the frost got them before I got them plowed under, the roots were covered with nitrogen nodules. Last year I planted ensilage corn on that piece alongside of a piece that was manured, and the corn on the Soybean piece was three times as large — nice and green, away ahead of the piece with the dressing.

M. C. ROGERS, *Belfast, Maine.*

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I had mighty fine luck with my Midwest Soys and my ensilage corn that I bought of you. They grew four feet and made over a ton extra to the acre. The silage resulting is just dandy. It might interest you to know Soys have never been planted here on this farm before and my success is due to your bacteria. It's the best that I have used for any purpose and I have used several different varieties.

JAMES T. PINE, *Port Chester, N. Y.*

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Two years ago I obtained quite a good deal of seed of you of what you call "Little Cob Yellow Dent." We have raised it for two years and like it fine.

CHARLES O. DICKEY, *Warsaw, Ind.*

## Oats

THE oats produced in this country in 1924 are far superior to any crop we have had for years, in color, weight and plumpness. The following are those we consider best.

### SIXTY-DAY

Not only is this the earliest Oats, but one of the largest yielders. Owing to its extreme earliness it will make a crop where later varieties will fail. The straw is short and does not lodge, which makes it particularly desirable for a nurse crop. It has great feed value for the reason that the hull is thin and light. One of the best varieties for a soiling crop used in connection with field peas.

### SCOTTISH CHIEF

These Oats are extra heavy and very plump, weighing from thirty-eight to forty pounds per measured bushel. We unreservedly recommend them.

### MIAMI

This is what the Ohio Experiment Station says: "Originally known as Ohio No. 6203. Originated as a pure line selection from the Siberian variety in 1906. Spikelets 2-3 grained, kernels white, awns weak, straw medium stiff. Average height, 40 inches; tillering power good; medium maturity. Has the highest ten-year average yield of any variety on Experiment Station farm at Wooster."

A large number of field tests made in this county in 1924 showed the Miami to out-yield others by at least five bushels.

### FULGHUM

This is one of the best known and highest yielding early varieties.

IOWA 103

Introduced by the Iowa Experiment Station and quite well known.

SIDE OATS

We have a limited quantity.

BARLEY

The best known bearded Barley is the Oderbrucker.

In addition to the bearded we can now supply in limited quantity genuine Beardless Barley, and in another season hope to have enough for every one. Several years ago we discontinued selling Beardless Barley because so much of it was largely bearded but now we have beardless that is practically pure. Two bushels are sown per acre.

BUCKWHEAT

Japanese is the most popular variety and we have found it to be the largest yielder. We can usually supply the Silver Hull.

In addition to the grains described here, we can furnish Sorghum, Kaffir Corn, Cow Horn Turnips, etc.

## Extract from Scott's Bacteria Chart

**What is a legume?** A legume is a plant which is characterized among other things, by a high protein content. Common examples are peas, beans, vetches, clovers, alfalfa, soybeans and cow peas.

**What are legume bacteria?** They are minute plants so small that they can be seen only with a microscope of very high power.

**What do these bacteria do?** They obtain nitrogen from the air and in some way pass it on to the legume plant.

**How much nitrogen is obtained from the air by an acre crop of legumes?** About one hundred pounds or more.

**What is the money value of this?** From \$16.00 to \$30.00 depending on the market value of nitrogen.

**Do legumes always have nodules?** No.

**When are nodules present?** Only when the proper bacteria are present.

**How may one insure the presence of the proper bacteria?** By inoculation.

**In securing proper inoculation, why is Scott's Bacteria superior to others?** It is easily applied, economical to use and is guaranteed to produce nodules.

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If you want a complete list of 36 Questions and Answers ask for a copy of our Chart.

# Scott's Bacteria

**T**HE inoculation idea had to be tested. Years ago when the first commercial cultures were brought out they met with a cautious reception.

The farmer was entitled to proof. Today he has it. From the list of Scott's Bacteria users alone, we can give concrete examples of increased fertility and greater yields through inoculation. The cost in comparison with the assured profit is insignificant. Conduct your own tests and see.



# Legume Bacteria

*Ask for Bacteria "Questions and Answers"*

**N**ITROGEN, which is essential to the growth of all plants and animals, is constantly being removed from the soil. Some of the instrumentalities of its removal are: the growth of grain and other crops, the drainage of land, the action of wind and rain. A portion of this loss may be made up by the manure produced on the farm and by commercial nitrogen, but the cost of the latter is too great for profitable use. The only way in which nitrogen can be supplied so that farming may be profitably conducted is to draw upon the unlimited supply in the air.

Only the legumes, clover, beans, peas, etc., are capable of utilizing the nitrogen of the atmosphere. They are rich in protein, requiring more nitrogen than other plants; being heavy nitrogen feeders would be against them if they could not take the nitrogen from the air and use it. The air is made up of several gases, the proportion of nitrogen being 79%.

A legume cannot of itself make use of this nitrogen but the bacteria which live within the nodules on the roots are able directly to utilize the nitrogen of the air. The nitrogen passes into the bacteria and is changed along with other substances that are present into more complex nitrogenous substances which are used in some unknown way by the legume. The legume gives the bacteria a favorable place for development. It supplies the bacteria with sugars and other substances they need and in return the bacteria make the nitrogen of the air available for use of the plant.

The bacteria penetrate the root hairs and rapidly reproduce themselves. After a time the bacteria reach the interior of the root, still reproducing, and pass from one cell to another. The root enlarges and the nodule is formed. A plant cannot take nitrogen from the air unless the proper strain of bacteria is already in the soil or is introduced by inoculation.

To show that inoculation pays and performs a real service for

the farmer legumes have often been grown experimentally in sterilized soil that is entirely lacking in nitrogen. In these tests the inoculated plants make vigorous growth in spite of the absence of plant food in the soil.

Besides storing up nitrogen for the use of following crops, inoculation in most cases increases the growth of the inoculated legume, besides making this legume richer in protein.

The problem of keeping the soil as productive as possible is vital. If the ground is kept in a healthy condition you avoid half the gamble of farming. Inoculation is a big factor in increasing yields and in enhancing the value of your farm by building up the soil. The scientific way as compared with the soil method is not only more thorough but more economical.

### “FRIENDLY WORKERS OF THE SOIL”

The subject of soil bacteriology and its relation to practical farming is interesting and important. There is too much to be said on this subject to do it justice in a few short paragraphs, so we have prepared a booklet entitled, “Friendly Workers of the Soil.” You will not find it tedious reading and the information it contains should prove helpful to every farmer.

### SCOTT'S GUARANTEED BACTERIA

The great advantages of Scott's Bacteria may be enumerated briefly: ease of application, economy, and guaranteed results. These three factors are worthy of the closest consideration in buying inoculating material. It has been difficult in the past to secure cultures that measured up in all three respects.

In ordering please specify the kind of legume you want to inoculate. The following groups are each inoculated by different strains of bacteria: Alfalfa, Sweet and Bur Clovers; all true clovers, Red, Alsike, Mammoth, Crimson, and White; Cowpeas, Jap Clover, Lima and Velvet Beans; Soybeans; Garden and Field Beans; Garden and Field Peas, and Vetches.

If you have not received “Friendly Workers of the Soil,” or, having looked it over, wish additional copies, let us hear from you.

## O. M. SCOTT & SONS COMPANY

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Perhaps you can get Scott's Bacteria through your County Agent. Last year over two hundred of them kept a supply in the office.

### CONVENIENT ORDER BLANK

Many of our customers send in early spring orders for seed and bacteria. Later in the season when another legume, Soybeans for example, is sowed, they forget about inoculation until the last minute and then rather than delay planting go ahead and trust to good luck.

No one claims that inoculation is absolutely necessary. Through most of the preceding years few inoculated. Nevertheless we should not be content with customs that prevailed in the past if new and profit-bringing discoveries have been made. *Every legume will give its biggest return per acre when inoculated.*

If you are in a hurry for Scott's Bacteria, use the order blank below. Please note we are offering twelve one dollar cans for ten dollars. If you only need ten yourself, order twelve and sell the other two cans to a neighbor.

### RUSH ORDER FOR SCOTT'S BACTERIA

Gentlemen:

Please send immediately by prepaid parcel post the following order of Scott's Guaranteed Bacteria:

..... Cans for Sweet Clover or Alfalfa  
..... Cans for Red, Alsike, Mammoth or Crimson  
..... Cans for Soybeans  
..... Cans for Cow Peas or Jap Clover  
..... Cans for Vetch or Field and Garden Peas  
..... Cans for .....

Total ..... Cans

Enclosed find check for \$..... Please send cultures to

Name.....

Route.....

Post Office..... State.....

(One can will inoculate 60 pounds)



A FEW POINTS ABOUT ORDERING

*Order Early.* It always pays. Prices may be no higher, but sometimes it is impossible to get pure seed late in the season.

*Order Blank.* Use it, please. When shipping point is different from your mail address give county under each name.

*Prepay Stations.* If yours is a prepay station, be sure to so state on the order blank and send plenty of money for freight charges. We return the difference.

*Freight or Express.* We always ship by freight unless otherwise specified. However, one should keep in mind that express companies give low rates on seed. A small order can sometimes be sent as cheaply by express as by freight. On moderately sized orders we advise express. Marysville is in Union County, Ohio, thirty miles from Columbus on the C. C. C. & St. L. and New York Central Railroads. Beans, Peas, and Grains take fourth class freight rates, seeds third class rates.

*Parcel Post.* Seed may be sent by parcel post according to the following table. In the first, second and third zone the weight limit is 70 pounds; in the others the weight limit is 50 pounds.

ZONE RATES

<i>Zone</i>	<i>1st lb. or fraction</i>	<i>Additional lb. or fraction</i>
1st within 50 miles of Marysville . . . . .	5c	1c
2nd within 50 to 150 miles of Marysville . . . . .	5c	1c
3rd within 150 to 300 miles of Marysville . . . . .	6c	2c
4th within 300 to 600 miles of Marysville . . . . .	7c	4c
5th within 600 to 1,000 miles of Marysville . . . . .	8c	6c
6th within 1,000 to 1,400 miles of Marysville . . . . .	9c	8c
7th within 1,400 to 1,800 miles of Marysville . . . . .	11c	10c
8th within 1,800 and over miles of Marysville . . . . .	12c	12c

BAGS

It is not possible to ship three bushels of seed in one bag. It would be better if no bag contained over two bushels of seed, for

there is less likely to be a loss as a result of careless handling by railroad employees. The express companies prefer that we ship not over 120 pounds in a bag. We furnish bags at practically cost, so you get full value. We like to ship in new bags; but if you wish, send your own, being sure to put your name and address on the package, and to say in the order that they have been sent.

*If you send your own bags*, kindly mail them and your order on the same day, but not in the same package. A delay in shipping is often due to the failure of bags to arrive promptly.

Burlaps are not suitable for seed, and often cause losses, even when used for shipping grain.

### CHANGE IN PRICE

All seed must be sold on the basis of market quotations. It is for this reason that our prices are for prompt acceptance. A slight fluctuation, however, does not affect our prices. We always accept orders at the prices quoted if at all possible, but we must follow any material changes whether they be up or down.

If you delay ordering after our price list has reached you some instructions for a possible adjustment should be sent. The simplest method is by adding or deducting seed. We often do the former or refund by check, but we never deduct seed unless so instructed. Taking the time to write causes a delay but we must be sure that the extra cost is approved by our customer.

Please remember that anything which detracts from efficiency is an expense and that eventually the buyer must pay it. We therefore ask your cooperation in enabling us to handle orders as economically and as promptly as possible. If you wish to do so just send along for the seed you require without writing for later quotations. Give us instructions to be followed in case of a change in price and we will guarantee that our treatment of the order will meet entirely with your approval.

## CASH WITH ORDER

*In Every Case We Must Adhere to This Policy*

We would be perfectly willing to let down a little, but having had so much difficulty, especially in getting the small balances off our books, we are going to ask everybody, without exception, to include cash with order. If an error has been made in addition or if for any reason there is a small balance due, we will deduct seed. If you are not sure of price and in a hurry, you might send us a blank check, protecting yourself by writing in "not good for over \$. . . . .," and we will fill in the cost of your order.

O. M. SCOTT & SONS COMPANY

Freight and Express Rates from Marysville, Ohio

	Freight Class		Ex. per 100 lbs.		Freight Class		Ex. per 100 lbs.
	3rd	4th			3rd	4th	
<b>Arkansas</b>				<b>New York-Con.</b>			
Little Rock.....	\$1.95	\$1.60	\$3.06	Delhi.....	\$ .70	\$ .48	\$2.03
<b>California</b>				Elmira.....	.61	.43	1.82
San Francisco.....	3.90	3.30	10.08	New York.....	.76	.53	2.23
<b>Connecticut</b>				Rochester.....	.56	.41	1.82
Hartford.....	.80	.57	2.39	Syracuse.....	.61	.43	1.92
<b>Delaware</b>				<b>North Carolina</b>			
Wilmington.....	.70	.48	2.13	Raleigh.....	1.28	.95	2.86
<b>Dist. of Col.</b>				<b>Ohio</b>			
Washington.....	.72	.50	2.03	Cambridge.....	.35	.27	1.09
<b>Georgia</b>				Celina.....	.34	.25	.94
Atlanta.....	1.68	1.52	2.75	Cincinnati.....	.39	.30	1.09
<b>Illinois</b>				Circleville.....	.31	.25	.94
Chicago.....	.55	.41	1.46	Cleveland.....	.44	.31	1.09
Danville.....	.52	.40	1.35	Mansfield.....	.34	.25	.94
Springfield.....	.60	.45	1.71	Pomeroy.....	.43	.33	1.09
<b>Indiana</b>				Portsmouth.....	.45	.34	1.46
Evansville.....	.52	.40	1.71	Toledo.....	.38	.29	.94
Indianapolis.....	.46	.35	1.35	Zanesville.....	.35	.27	1.19
South Bend.....	.53	.40	1.35	<b>Pennsylvania</b>			
<b>Iowa</b>				Clearfield.....	.72	.50	1.67
Des Moines.....	1.24	.97	2.50	Meadville.....	.70	.48	1.35
<b>Kentucky</b>				Philadelphia.....	.70	.48	2.13
Hickman.....	.71	.62	2.08	Pittsburgh.....	.51	.38	1.46
Lexington.....	.75	.63	1.35	Wellsboro.....	.72	.50	1.82
Williamsburg.....	.70	.48	1.97	Wilkesbarre.....	.70	.48	2.03
<b>Maine</b>				<b>Rhode Island</b>			
Portland.....	.80	.57	2.54	Providence.....	.80	.57	2.50
<b>Maryland</b>				<b>South Dakota</b>			
Baltimore.....	.73	.50	2.03	Pierre.....	1.54	1.18	3.85
<b>Massachusetts</b>				<b>Tennessee</b>			
Boston.....	.81	.57	2.39	Knoxville.....	.88	.70	2.39
<b>Michigan</b>				<b>Vermont</b>			
Detroit.....	.45	.34	1.19	Montpelier.....	.72	.50	2.39
Grand Rapids.....	.52	.40	1.35	<b>Virginia</b>			
Jackson.....	.46	.35	1.19	Charlottesville.....	.73	.51	2.03
Ludington.....	.70	.52	1.82	Richmond.....	.73	.51	2.39
<b>Minnesota</b>				<b>West Virginia</b>			
Minneapolis.....	1.07	.78	2.86	Charleston.....	.50	.37	1.61
<b>Missouri</b>				Clarksburg.....	.54	.40	1.46
Jefferson City.....	1.06	.81	2.44	Harrisville.....	.54	.40	1.19
<b>New Hampshire</b>				Huntington.....	.44	.33	1.46
Concord.....	.80	.57	2.54	Morgantown.....	.54	.40	1.61
<b>New York</b>				Wheeling.....	.51	.39	1.19
Albany.....	.73	.51	2.13	<b>Wisconsin</b>			
Buffalo.....	.56	.42	1.71	Madison.....	.61	.46	1.92
Canton.....	.80	.57	2.13	Milwaukee.....	.61	.46	1.82



